ATTACHMENT J

COMPLIANCE DEMONSTRATION WITH 40 CFR 264, SUBPARTS G AND F UNDER CORRECTIVE ACTION PROCEDURES FOR MATERIAL DISPOSAL AREA H AT TECHNICAL AREA 54

Compliance Demonstration with 40 CFR Part 264, Subparts G and F under Corrective Action Procedures for Material Disposal Area H at Technical Area 54

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Introduction

This section of the TA-54 closure and post-closure care plans was prepared in accordance with the December 21, 2001, New Mexico Environment Department Hazardous Waste Bureau (NMED-HWB) letter (HWB-LANL-99-050) "Determination of Incompleteness for: ... 4) Closure Plan for Technical Area 54, Material Disposal Area H, (Revision 1), March 1998, and the March 20, 2002 NMED-HWB letter (HWB-Facility-99-050) "Closure and Post-Closure Plan Requirements, Technical Area 54, Material Disposal Area H." The information provided below includes discussion of the applicability of alternative mechanisms and corrective action to address groundwater monitoring, closure and post-closure care requirements at MDA H, and a brief description of MDA H with a summary of investigation and remediation activities completed to date as requested by the NMED-HWB.

In accordance with the December 21, 2001 NMED-HWB letter, compliance with closure and post-closure care requirements in 40 CFR Part 264, Subparts F and G for MDA H may be demonstrated under 40 CFR 264.101 corrective action procedures. This approach is based on 40 CFR §§ 264.90(f), 264.110(c), 264.112(b)(8), and 264.118(b)(4) which state that the Secretary may replace all or part of the requirements of §§ 264.91 through 264.100 (Subpart F) and the requirements of Subpart G with alternative requirements for groundwater monitoring and corrective action for releases to groundwater and closure/post-closure care requirements set out in a permit or enforceable document where the Secretary determines that: 1) a regulated unit (shaft 9 at MDA H) is situated among solid waste management units (SWMUs) (shafts 1-8 at MDA H), a release has occurred, and both the regulated unit and one or more of the SWMUs are likely to have contributed to the release (documented in the MDA H RFI Report); and 2) it is not necessary to apply the groundwater monitoring and corrective action requirements of 40 CFR §§ 264.91 through 264.100 (Subpart F) or the closure and post-closure care requirements (Subpart G) because alternative requirements will protect human health and the environment and will satisfy the closure performance standard of § 264.111(a) and (b). EPA promulgated the alternative requirements rule in 1998 (adopted by NMED in 2000), to reduce the confusion and inefficiency caused by the application of two different regulatory requirements – closure/post-closure care for regulated units and corrective action for SWMUs that are collocated. The rule allows for the integration of cleanup requirements for a regulated unit into the requirements for SWMUs developed under approved remediation authorities protective of human health and the environment. The procedures established in Part 264, Subparts F and G were not designed to address the complexity and variety of issues involved in remediation of complex sites, while the corrective action process provides flexibility to the regulator to decide on remedies that reflect the conditions and complexities of different facilities while meeting the substantive groundwater monitoring, closure and post-closure care requirements of Part 264, Subparts F and G.

For MDA H, the specific means of compliance with the substantive requirements of Part 264, Subparts F and G have not yet been determined but they will be defined in future corrective action documents including the MDA H Corrective Measures Study (CMS) report currently under preparation, and the subsequent Corrective Measure Implementation (CMI) plan for MDA H. A "crosswalk" demonstrating how planned corrective actions to be implemented at MDA H will be compliant with applicable groundwater monitoring, closure and post-closure requirements and the document(s) where compliance is and/or will be documented is provided as Attachment A. As the corrective action process continues at MDA H, the specific means for ensuring compliance with substantive requirements of Part 264, Subparts G and F will be documented in updated versions of the "crosswalk" to be provided as an attachment to the future corrective action documents.

Waste Management Area Description

Material Disposal Area (MDA) H, designated Solid Waste Management Unit (SWMU) 54-004, is a 0.3-acre site on Mesita del Buey consisting of nine shafts used from 1960 to 1986 for the disposal of LANL-classified waste such as weapon-component mock-up shapes, detonators, papers, and tritium-contaminated items. Much of the classified waste was nonhazardous; however, scraps and shapes were contaminated with depleted uranium, fuel elements, residual plutonium, and HE. Each shaft is 6 ft in diameter and 60 ft deep. The shafts were capped when waste came to within 6 ft of the surface. Shafts 1 through 8 are capped with 3 ft of crushed tuff followed by 3-ft-thick concrete caps; shaft 9 is capped solely by a 6-ft-thick layer of concrete. The surface area of MDA H has been reseeded.

Pre-RFI Investigations

Tritiated water was encountered at a depth of 40 ft in shaft 8 in 1969 during a LANL-wide effort to determine the background value for tritium in tuff. To determine the extent of tritium at MDA H, the investigation was expanded to include sampling and analysis of air and soil in and around the disposal shafts. The highest tritium concentrations were measured around shaft 8. Additional soil and flora samples were collected in 1973 and analyzed for tritium. Plants growing in the area were found to have concentrations of tritium 3 orders of magnitude higher than species in uncontaminated areas. Surface soils near the shafts had measured concentrations of tritium two to three times the concentration measured in background samples outside the area. Data from the historic tritium investigation were used to support the conceptual model for fate and transport of tritium at MDA H.

RFI Results – Nature and Extent of Contamination

The RFI report for sediment pathways from MDAs G, H, J, and L describes the Phase I RFI of drainage channels associated with those MDAs. This RFI was part of the Phase I characterization of TA-54. Complete characterization of the MDAs includes analysis of samples from surface water and sediment, air, and subsurface vapor. This investigation focused on the MDAs collectively rather than on individual disposal cells, shafts, or pits. The objective of this RFI was to determine if chemicals were migrating from the MDAs through the drainage channels by way of surface sediment transport, and if so, to determine if concentrations likely would adversely impact human health or the environment. Seventeen drainage channels were selected for sediment sampling, based on their potential for having collected sediment run-off from the four MDAs. Fourteen drainage channels originate near MDA G; the other three MDAs each have only one significant drainage channel. Sample locations were selected within depositional areas as determined by an on-site geomorphic analysis of each channel. Samples were screened for radioactivity. Samples with gross gamma levels greater than three standard deviations above the mean value of a set of background sediment samples were sent for off-site laboratory analysis of TAL inorganic chemicals, PCBs, pesticides, cyanides, and radionuclides. Analytical results first were compared to background sediment concentrations from TA-39 and sediment concentrations from TA-54 drainage channels that have no history of receiving contaminated run-off. Chemicals with concentrations greater than background and chemicals with no background levels then were compared to SALs. All chemicals detected in MDA-related drainages were below their respective SALs. An ecological assessment of each MDA-related drainage consisted of an evaluation of the landscape condition for potential receptor access. The drainage channels associated with each MDA were determined not to be of ecological concern because there was little receptor access.

The sediment pathway RFI report stated that the ecological risk assessment process would be undertaken for the area when regulators approved the ecological exposure unit approach and recommended NFA for the drainage channels from MDAs G, H, J, and L.

The preliminary RFI report for MDAs G, H, and L was issued by the ER Project in 2000, based on the RFI fieldwork conducted in 1994 and 1995, supplemented by other historic TA-54 and LANL environmental-surveillance data. The purpose of the 2000 RFI was to determine contaminant nature and extent in air, surface water, channel sediments, and subsurface media. The RFI focused on identifying COPCs and developing a conceptual model for their fate and transport. In identifying COPCs, data of sufficient quality were compared with applicable thresholds (i.e., BVs for inorganic chemicals, BVs and/or FVs for radionuclides, and instrument detection limits for organic chemicals). When data were not clearly less than the applicable threshold, analytes were retained as COPCs. Information used to develop the site conceptual model includes both non-ER Project and ER Project RFI data. With the exception of source characterization, much of the information needed to develop the conceptual model for MDA H was available from sources outside the ER Project. The RFI for MDA H included collecting additional field data, integrating newly obtained data with available information, and using the integrated data to identify COPCs and develop a site conceptual model. In January 2000, NMED, DOE, and LANL formed the MDA High Performing Team (HPT) to work on the TA-54 RFI report. In September 2000, the HPT were directed to expedite implementation of a corrective measure alternative at one MDA. The HPT selected MDA H and narrowed the scope of its effort to accommodate the change. The RFI for MDA H subsequently was separated from the RFI reports for MDAs G and L to expedite the evaluation and implementation of a corrective measure at MDA H. The ER Project reissued the RFI report for just MDA H in May 2001.

The RFI fieldwork included the collection of 4 storm drainage sediment samples and 33 core samples from 4 boreholes. Channel sediment samples were analyzed for inorganic chemicals, cyanides, PCBs, pesticides, tritium, and radionuclides. Core samples were analyzed for TAL metals, cyanide, VOCs, SVOCs, PCBs, pesticides, tritium, and radionuclides. Background comparisons (inorganic chemicals and radionuclides) and data evaluations (organic chemicals) identified methoxychlor and tritium in channel sediments and copper, selenium, several organic chemicals, and tritium in subsurface tuff as COPCs. None of the VOCs or inorganic chemicals was detected above its SALs. The maximum reported tritium concentration of 777,000 pCi/mL at a depth of 52.5 ft bgs is equivalent to approximately 1543 pCi/g based on the sample soil moisture of 0.2%. This concentration is an order of magnitude greater than the SAL of 880 pCi/g. The maximum concentration of tritium at 10 ft bgs was 5890 pCi/mL, which is equivalent to 182 pCi/g based on the sample soil moisture of 3%. Methoxychlor was not disposed of at MDA H and its presence most likely is due to routine surface application. Copper and selenium do not appear to be related to a release from the PRS. Tritium and VOCs are related to a release from MDA H. Tritium is in the form of water vapor. Data gathered during the RFI identified the nature and partial extent of contamination in the surface and subsurface media. Analytical results from the RFI were used to assess the present-day impacts to ecological and human health receptors. The present day-risk assessment concluded that existing contamination does not exceed applicable EPA risk thresholds.

To address the remaining data gaps regarding the extent of tritium and VOC contamination and at the request of NMED, the ER Project prepared and implemented a supplemental RFI SAP in 2001. Supplemental RFI activities completed during 2001 included collecting additional subsurface samples to further define the lateral extent of tritium and organic chemical contamination from

borehole 54-1023 and from two newly drilled boreholes, installing an air-monitoring station adjacent to the southeastern boundary of MDA H to monitor for tritium in air at the MDA H fence line, and collecting a sediment sample near sample location 54-5132 at the interface of the alluvial sediments and bedrock to collect data where all the sediment accumulated over time. An RFI addendum will be issued in May 2002. The report will summarize the 2001 data and assess whether there are changes to the present day-risk assessment presented in the MDA H RFI report.

RCRA Corrective Measures Study

In December 2000, NMED directed LANL to prepare a CMS plan for MDA H because NMED believes that hazardous wastes at MDA H may present a future threat to human health and the environment over the life of the buried wastes. LANL also agreed to proceed with a CMS to address the potential for adverse impacts from future releases of radionuclides (tritium). The CMS plan identified corrective action objectives, preliminary corrective measure alternatives that address potential unacceptable future risks, and the methodology to be followed in evaluating the alternatives during the CMS. The CMS plan was approved by NMED in December 2001. The CMS is being conducted in accordance with RCRA requirements and will meet the intent of DOE Order 5400.5, “Radiation Protection of the Public and the Environment.” The CMS report for MDA H will be issued during the summer of 2002.

References

Monthly Progress Report for Corrective Measures Study for Material Disposal Area H, Potential Release Site 54-004, at Technical Area 54, February 2002 LA-UR Number: 02-1454

Monthly Progress Report for Corrective Measures Study for Material Disposal Area H, Potential Release Site 54-004, at Technical Area -54, January 2002 LA-UR Number: 02-1345

Plan for Supplemental Sampling for the RCRA Facility Investigation at Material Disposal Area H LA-UR Number: 01-2516

RFI Report for Material Disposal Area H at Technical Area -54 LA-UR Number: 01-1208

Corrective Measures Study (CMS) Plan for Material Disposal Area (MDA) H at Technical Area 54 LA-UR Number: 01-1629

RFI Report for Material Disposal Areas G, H, and L at Technical Area -54 LA-UR Number: 00-1140

Modification to Resource Conservation and Recovery Act Facility Investigation (RFI) Work Plan for Operable Unit (OU) 1148, Field Unit 5 LA-UR Number: No LA-UR

RFI Report for Channel Sediment Pathways from MDAs G, H, J and L, at TA-54 (located in former Operable Unit 1148) LA-UR Number: 96-0110

RFI Work Plan for Operable Unit 1148 LA-UR Number: 92-0855

ATTACHMENT A

MDA H

OPERATING UNIT REGULATIONS FOR GROUND WATER/CLOSURE/POST-CLOSURE CARE AND CORRESPONDING HSWA ACTIVITIES

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.90	Applicability		
§264.90(a)(1)	Except as provided in paragraph (b) of this section, the regulations in this subpart apply to owners or operators of facilities that treat, store or dispose of hazardous waste. The owner/operator must satisfy the requirements identified in paragraph (a)(2) of this section for all wastes (or constituents thereof) contained in solid waste management units at the facility, regardless of the time at which waste was placed in such units.	For the containment corrective measure alternatives evaluated for MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies the requirements identified in §264.90(a)(2) through the implemention of alternative requirements (§264.90(f), 264.110(c) and 264.118(b)(4)). A detailed description of how the selected corrective meets these requirements will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.90(a)(2)	All solid waste management units must comply with the requirements in §264.101. A surface impoundment, waste pile, and land treatment unit or landfill that receives hazardous waste after July 26, 1982 (hereinafter referred to as a "regulated unit") must comply with the requirements of §§264.91 through 264.100 in lieu of §264.101 for purposes of detecting, characterizing and responding to releases to the uppermost aquifer. The financial responsibility requirements of §264.101 apply to regulated units.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.90(b)	The owner/operator's regulated unit or units are not subject to regulation for releases into the uppermost aquifer under this subpart if:	NA	NA
§264.90(b)(1)	The owner/operator is exempted under §264.1; or	NA	NA
§264.90(b)(2)	He operates a unit which the Secretary finds:	NA	NA
§264.90(b)(2)(i)	Is an engineered structure,	NA	NA
§264.90(b)(2)(ii)	Does not receive or contain liquid waste or waste containing free liquids,	NA	NA
§264.90(b)(2)(iii)	Designed and operated to exclude liquid, precipitation, and other run-on and run-off,	NA	NA
§264.90(b)(2)(iv)	Has inner and outer layers of containment enclosing the waste,	NA	NA
§264.90(b)(2)(v)	Has a leak detection system built into each containment layer,	NA	NA
§264.90(b)(2)(vi)	Continuing operation and maintenance of leak detection systems will be provided during active life and during closure/post-closure care periods, and	NA	NA
§264.90(b)(2)(vii)	To reasonable degree of certainty, will not allow hazardous constituents to migrate beyond out containment layer prior to end of post-closure care period.	NA	NA

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.90(b)(3)	The Secretary finds, pursuant to §264.280(d), that the treatment zone of a land treatment unit that qualifies as a regulated unit does not contain levels of hazardous constituents that are above background levels of those constituents by an amount that is statistically significant, and if an unsaturated zone monitoring program meeting the requirements of §264.278 has not shown a statistically significant increase in hazardous constituents below the treatment zone during the operating life of the unit. An exemption under this paragraph can only relieve an owner or operator of responsibility to meet the requirements of this subpart during the post-closure care period; or	NA	NA
§264.90(b)(4)	The Secretary finds that there is no potential for migration of liquid from a regulated unit to the uppermost aquifer during the active life of the regulated unit (including the closure period) and the post-closure care period specified under §264.117. This demonstration must be certified by a qualified geologist or geotechnical engineer. In order to provide an adequate margin of safety in the prediction of potential migration of liquid, the owner or operator must base any predictions made under this paragraph on assumptions that maximize the rate of liquid migration.	Should sufficient information support this exemption for a regulated unit in the future, the HSWA activity would be equivalent to that prescribed by the exemption.	NA
§264.90(b)(5)	He designs and operates a pile in compliance with §264.250(c).	NA	NA
§264.90(c)	The regulations under this subpart apply during the active life of the regulated unit (including the closure period). After closure of the regulated unit, the regulations in this subpart:	For the containment corrective measure alternatives evaluated for MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies the requirements identified in §264.90(c) through the implemention of alternative requirements (§264.90(f), 264.110(c) and 264.118(b)(4)). A detailed description of how the selected corrective meets these requirements will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.90(c)(1)	Do not apply if all waste, waste residues, contaminated containment system components, and contaminated subsurface soils removed or decontaminated at closure;	For MDA H, see the CMS report for a general description of the excavation alternative corrective measure (equivalent to clean closure). If the excavation corrective measure is selected, details will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.90(c)(2)	Apply during post-closure care period if owner/operator is conducting a detection monitoring program under §264.98; or	The probable corrective measure to be implemented at MDA H will include monitoring in the vadose zone beneath MDA H. The LANL hydrogeologic characterization program (as implemented through the LANL Hydrogeologic Work Plan) proposes the locations for characterization wells for TA-54 that after four sampling events will be included in LANL Environmental Surveillance Program, and may, if appropriate, be used as repetitive monitoring wells for TA-54 as a whole.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.90(c)(3)	Apply during the compliance period under §264.96 if the owner/operator is conducting a compliance monitoring program under §264.99 or a corrective action program under §264.100.	If monitoring indicates a more comprehensive program is needed to adequately comply with standards developed consistent with §264.92, additional characterization and/or well installation will occur, if appropriate.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.90(d)	Regulations in this subpart may apply to miscellaneous units when necessary to comply with §§264.601-603.	NA	NA
§264.90(e)	The regulations of this subpart apply to all owners and operators subject to the requirements of 40 CFR 270.1(c)(7), when the Bureau issues either a post-closure permit or an enforceable document (as defined in 40 CFR 270.1(c)(7)) at the facility. When the Bureau issues an enforceable document, references in this subpart to "in the permit" mean "in the enforceable document."	CMS and CMI plans and resulting CMS and CMI reports for MDA H describing activities equivalent to post-closure permit requirements will be "enforceable documents" consistent with 265.121.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.90(f)	The Secretary may replace all or part of the requirements of §§ 264.91 through 264.100 applying to a regulated unit with alternative requirements for groundwater monitoring and corrective action for releases to groundwater set out in the permit (or in an enforceable document) (as defined in 40 CFR 270.1(c)(7)) where the Secretary determines that:	Activities proposed and implemented in the above referenced plans will be effectively equivalent to the cited Subpart F requirements.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.90(f)(1)	The regulated unit is situated among SWMUs or areas of concern (AOC), a release has occurred, and both the regulated unit and one or more SWMUs or AOCs are likely to have contributed to the release; and	If the possibility for this situation exists, alternative activities may appropriately replace all or part of the above cited Subpart F requirements.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.90(f)(2)	It is not necessary to apply the groundwater monitoring and corrective action requirements of §§264.91-100 because alternative requirements will protect human health and the environment.	Should the above situation exist, §264.90(f)(1), alternative activities protective of human health and the environment and proposed in lieu of §264.91-264.100 will preclude the need for application of Subpart F requirements.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.91	Required programs		
§264.91(a)	Owner/operators subject to this subpart must conduct a monitoring and response program as follows:		
§264.91(a)(1)	Whenever hazardous constituents under §264.93 from a regulated unit are detected at a compliance point under §264.95, owner/operator must institute a compliance monitoring program under §264.99. Detected is defined as statistically significant evidence of contamination as described in §264.98(f);	If "detection" at the aggregate boundary is indicated, additional characterization and/or well installation will occur if appropriate through a more comprehensive monitoring program. The definition of "detected" in §264.91(a)(1) will be used. Concentration limits protective of human health and the environment will be established similar to ground water protection standards in §264.92.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.91(a)(2)	Whenever the ground-water protection standard under §264.92 is exceeded, owner/operator must institute a corrective action program under §264.100. Exceedance is defined as statistically significant evidence of increased contamination as described in §264.99(d);	Actions to correct any exceedances of concentrations established when hazardous constituents area "detected" will be taken as necessary.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.91(a)(3)	Whenever hazardous constituents under §264.93 from a regulated unit exceed concentration limits under §264.94 in groundwater between the compliance point under §264.95 and the downgradient facility property boundary, owner/operator must institute a corrective action program under §264.100, or	Should established concentration limits be exceeded between the point of compliance and the downgradient boundary, actions to correct such exceedances will be taken as necessary.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.91(a)(4)	In all other cases, owner/operator must institute a detection monitoring program under §264.98.	TA-54 characterization wells will be sampled and analyzed as repetitive monitoring wells as appropriate through the LANL Environmental Surveillance Program.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.91(b)	The Secretary will specify in the facility permit the specific elements of the monitoring and response program. The Secretary may include one or more of the programs identified in paragraph (a) of this section in the facility permit as may be necessary to protect human health and the environment and will specify the circumstances under which each of the programs will be required. In deciding whether to require the owner or operator to be prepared to institute a particular program, the Secretary will consider the potential adverse effects on human health and the environment that might occur before final administrative action on a permit modification application to incorporate such a program could be taken.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.92	The owner/operator must comply with conditions specified in the facility permit that are designed to ensure that hazardous constituents under §264.93 detected in the ground water from a regulated unit do not exceed the concentration limits under §264.94 in the uppermost aquifer underlying the waste management area beyond the point of compliance under §264.95 during the compliance period under §264.96. The Secretary will establish this ground-water protection standard in the facility permit when hazardous constituents have been detected in the ground water.	Should "detection" consistent with the definition in §264.91(a)(1) occur, LANL will comply with concentration limits established through a process similar to that described in §264.94.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.93	Hazardous constituents		
§264.93(a)	The Secretary will specify in the facility permit the hazardous constituents to which the ground-water protection standard of §264.92 applies. Hazardous constituents are constituents identified in appendix VIII of part 261 of this chapter that have been detected in ground water in the uppermost aquifer underlying a regulated unit and that are reasonably expected to be in or derived from waste contained in a regulated unit, unless the Secretary has excluded them under paragraph (b) of this section.	For any of the following information that is not already available or developed, it will be prepared and included in a manner consistent with §264.93 in corresponding corrective action/HSWA activity documents.	Section 5.0 of the MDA H CMS Report and future CMI Plan
§264.93(b)	The Secretary will exclude an Appendix VIII constituent from the list of hazardous constituents specified in the facility permit if he finds that the constituent is not capable of posing a substantial present or potential hazard to human health or the environment. In deciding whether to grant an exemption, the Secretary will consider the following:	Concentration limits established for hazardous constituents following "detection" will not include those incapable of posing a substantial present or potential hazard to human health or the environment considering the following:	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.93(b)(1)	Potential adverse effects on ground-water quality, considering:	Potential adverse effects on groundwater quality considering:	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.93(b)(1)(i)	Physical and chemical characteristics of waste in the regulated unit, including its potential for migration;	Detailed information on waste inventory and chemical characteristics for shaft 9 and shafts 1-8 presented in MDA H RFI Report, RFI Addendum, and CMS Report including potential for migration and site conceptual model.	Section 2.0 of the MDA H RFI and Sections 2.0 and 3.0 of the MDA H CMS Report

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.93(b)(1)(ii)	Hydrogeologic characteristics of the facility and surrounding land;	While additional information regarding the hydrogeologic characterization of the facility and surrounding land is being developed through the implementation of the Hydrogeologic Work Plan, information for MDA H can also be found in the Performance Assessment, Hydrogeologic Assessment of TA-54, Areas G and L, MDA H RFI Report, RFI Addendum, and MDA H CMS Report.	Section 3.0 and Appendices B-3.0 and B-4.0 of the MDA H RFI Report, and Section 2.0 of MDA H CMS Report
§264.93(b)(1)(iii)	Quantity of ground water and the direction of ground-water flow;	Information regarding quantity and direction of flow of groundwater can be obtained through the LANL Hydrogeologic Work Plan.	Future Hydrogeologic Work Plan reports and future MDA H CMI Plan
§264.93(b)(1)(iv)	Proximity and withdrawal rates of ground-water users;	Information regarding the proximity and withdrawal rates of ground-water users can be obtained in the annual water supply reports (with location maps) published by ESH-18, in sections 270.14(e), 264(b)(1)(iv) and 264.601(a)(5) of the LANL permit, or in previous LANL waiver documentation.	Future MDA H CMI Plan
§264.93(b)(1)(v)	Current and future uses of ground-water in the area;	Information regarding current and future users of groundwater in the area will be developed.	Future MDA H CMI Plan
§264.93(b)(1)(vi)	Existing quality of ground water, including other sources of contamination and their cumulative impact on ground-water quality;	Four sampling events for each well installed in the vicinity of TA-54 pursuant to the Hydrogeologic Work Plan will occur in addition to ongoing monitoring of Environmental Surveillance Program wells and ER site characterization efforts.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.93(b)(1)(vii)	Potential health risks caused by human exposure to waste constituents;	A present day human health risk screening assessment was completed and presented in the MDA H RFI Report. Results showed no unacceptable risk to human receptors. The CMS Report for MDA H will provide results of a future human health risk assessment, including potential for contaminant migration and the site conceptual model.	Section 4.0 of the MDA H RFI and Section 3.0 of the MDA H CMS Report
§264.93(b)(1)(viii)	Potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;	A present day ecological risk screening assessment was completed and presented in the MDA H RFI Report. Results showed no unacceptable risk to ecological receptors. The CMS Report for MDA H will provide results of a future ecological risk assessment, including potential for contaminant migration and the site conceptual model.	Section 4.0 of the MDA H RFI and Section 3.0 of the MDA H CMS Report

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.93(b)(1)(ix)	Persistence and permanence of the potential adverse effects; and	See RFI and CMS Reports for MDA H.	Section 4.0 of the MDA H RFI and Section 3.0 of the MDA H CMS Report
§264.93(b)(2)	Potential adverse effects on hydraulically-connected surface water quality, considering:	Potential adverse effects on hydraulically-connected surface water quality, considering:	Future Hydrogeologic Work Plan reports and future MDA H CMI Plan
§264.93(b)(2)(i)	Volume and physical and chemical characteristics of the waste in the regulated unit;	See RFI and CMS Reports for MDA H.	Section 2.0 of the MDA H RFI and Sections 2.0 and 3.0 of the MDA H CMS Report
§264.93(b)(2)(ii)	Hydrogeologic characteristics of the facility and surrounding land;	While additional information regarding the hydrogeologic characterization of the facility and surrounding land is being developed through the implementation of the Hydrogeologic Work Plan, information for MDA H can also be found in the Performance Assessment, the Hydrogeologic Assessment of TA-54, Areas G and L, MDA H RFI Report, RFI Addendum, and MDA H CMS Report.	Section 3.0 and Appendices B-3.0 and B-4.0 of the MDA H RFI Report, and Section 2.0 of MDA H CMS Report
§264.93(b)(2)(iii)	Quantity and quality of ground water, and the direction of ground-water flow;	Information to be obtained through implementation of the LANL Hydrogeologic Work Plan.	Future Hydrogeologic Work Plan reports and future MDA H CMI Plan
§264.93(b)(2)(iv)	Rainfall patterns in the region;	See MDA H RFI Report.	Appendix B-2.0 of MDA H RFI Report
§264.93(b)(2)(v)	Proximity of regulated unit to surface waters;	See RFI and CMS Reports for MDA H.	Section 3.0 and Appendices B-3.0 and B-4.0 of the MDA H RFI Report, and Section 2.0 of MDA H CMS Report

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.93(b)(2)(vi)	Current and future uses of surface waters in the area and any water quality standards established for those surface waters;	Information regarding surface water use, if not already described will be developed.	Future MDA H CMI Plan
§264.93(b)(2)(vii)	Existing quality of surface water, including other sources of contamination and the cumulative impact on surface-water quality;	The evaluation of LANL's surface water quality standards are considered in the evaluation of surface water and springs by the LANL Environmental Surveillance Program, the multisector CWA permit, as well as through ER Project characterization activities.	Section 3.0 and Appendices B-3.0 and B-4.0 of the MDA H RFI Report, and Section 2.0 of MDA H CMS Report
§264.93(b)(2)(viii)	Potential for health risks caused by human exposure to waste constituents;	See RFI and CMS Reports for MDA H.	Section 4.0 of the MDA H RFI and Section 3.0 of the MDA H CMS Report
§264.93(b)(2)(ix)	Potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and	See RFI and CMS Reports for MDA H.	Section 4.0 of the MDA H RFI and Section 3.0 of the MDA H CMS Report
§264.93(b)(2)(x)	Persistence and permanence of potential adverse effects.	See results of risk assessment in MDA H CMS Report	Section 4.0 of the MDA H RFI and Section 3.0 of the MDA H CMS Report
§264.93(c)	In making any determination under paragraph (b) of this section about the use of ground water in the area around the facility, the Secretary will consider any identification of underground sources of drinking water and exempted aquifers made under §144.8 of this chapter.	NA	NA
§264.94	Concentration limits		
§264.94(a)	The Secretary will specify in the facility permit concentration limits in the ground water for hazardous constituents established under §264.93. The concentration of a hazardous constituent:	Proposed concentration limits of detected hazardous constituents will be consistent with evaluation of parameters set forth in §264.94. To the extent that information necessary to establish provisions of this section do not already exist, they will be developed. Otherwise this information can be found in the previously identified documents.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.94(a)(1)	Must not exceed the background level of that constituent in the ground water at the time that limit is specified in the permit; or	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.94(a)(2)	For any constituent listed in §264.94, Table 1, must not exceed the respective value given in that table if the background level of the constituent is below the value given in Table 1; or	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.94(a)(3)	Must not exceed an alternate limit established by the Secretary under paragraph (b) of this section.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.94(b)	The Secretary will establish an alternate concentration limit for a hazardous constituent if he finds that the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the alternate concentration limit is not exceeded. In establishing alternate concentration limits, the Secretary will consider the following factors:	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.94(b)(1)	Potential adverse effects on groundwater quality, considering:	Potential adverse effects on groundwater quality, considering:	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.94(b)(1)(i)	Physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;	See RFI and CMS Reports for MDA H.	Section 2.0 of the MDA H RFI and Sections 2.0 and 3.0 of the MDA H CMS Report
§264.94(b)(1)(ii)	Hydrogeological characteristics of the facility and surrounding land;	While additional information regarding the hydrogeologic characterization of the facility and surrounding land is being developed through the implementation of the Hydrogeologic Work Plan, information for MDA H can also be found in the Performance Assessment, the Hydrogeologic Assessment of TA-54, Areas G and L, MDA H RFI Report, RFI Addendum, and MDA H CMS Report.	Section 3.0 and Appendices B-3.0 and B-4.0 of the MDA H RFI Report, and Section 2.0 of MDA H CMS Report

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.94(b)(1)(iii)	Quantity of ground water and the direction of ground-water flow;	Information to be obtained through implementation of the LANL Hydrogeologic Work Plan.	Future Hydrogeologic Work Plan reports and future MDA H CMI Plan
§264.94(b)(1)(iv)	Proximity and withdrawal rates of ground-water users;	Information regarding the proximity and withdrawal rates of ground-water users can be obtained in the annual water supply reports (with location maps) published by ESH-18, in sections 270.14(e), 264(b)(1)(iv) and 264.601(a)(5) of the LANL permit, or in previous LANL waiver documentation.	Future MDA H CMI Plan
§264.94(b)(1)(v)	Current and future uses of ground water in the area;	Information regarding current and future users of groundwater in the area will be developed.	Future MDA H CMI Plan
§264.94(b)(1)(vi)	Existing quality of ground water, including other sources of contamination and their cumulative impact on ground-water quality;	Four sampling events for each well installed in the vicinity of TA-54 pursuant to the Hydrogeologic Work Plan will occur in addition to ongoing monitoring of Environmental Surveillance Program wells and ER Project site characterization efforts.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.94(b)(1)(vii)	Potential for health risks caused by human exposure to waste constituents;	A present day human health risk screening assessment was completed and presented in the MDA H RFI Report. Results showed no unacceptable risk to human receptors. The CMS Report for MDA H will provide results of a future human health risk assessment, including potential for contaminant migration and the site conceptual model.	Section 4.0 of the MDA H RFI and Section 3.0 of the MDA H CMS Report
§264.94(b)(1)(viii)	Potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;	A present day ecological risk screening assessment was completed and presented in the MDA H RFI Report. Results showed no unacceptable risk to ecological receptors. The CMS Report for MDA H will provide results of a future ecological risk assessment, including potential for contaminant migration and the site conceptual model.	Section 4.0 of the MDA H RFI and Section 3.0 of the MDA H CMS Report
§264.94(b)(1)(ix)	Persistence and permanence of potential adverse effects; and	See results of risk assessment in MDA H CMS Report	Section 4.0 of the MDA H RFI and Section 3.0 of the MDA H CMS Report
§264.94(b)(2)	Potential adverse effects on hydraulically-connected surface water quality, considering:	Potential adverse effects on hydraulically-connected surface water quality, considering:	Future Hydrogeologic Work Plan reports and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.94(b)(2)(i)	Volume and physical and chemical characteristics of the waste in the regulated unit;	See RFI and CMS Reports for MDA H.	Section 2.0 of the MDA H RFI and Sections 2.0 and 3.0 of the MDA H CMS Report
§264.94(b)(2)(ii)	Hydrogeological characteristics of the facility and surrounding land;	While additional information regarding the hydrogeologic characterization of the facility and surrounding land is being developed through the implementation of the Hydrogeologic Work Plan, information for MDA H can also be found in the Performance Assessment, the Hydrogeologic Assessment of TA-54, Areas G and L, MDA H RFI Report, RFI Addendum, and MDA H CMS Report.	Section 3.0 and Appendices B-3.0 and B-4.0 of the MDA H RFI Report, and Section 2.0 of MDA H CMS Report
§264.94(b)(2)(iii)	Quantity and quality of ground water and direction of ground-water flow;	Information to be obtained through implementation of the LANL Hydrogeologic Work Plan.	Future Hydrogeologic Work Plan reports and future MDA H CMI Plan
§264.94(b)(2)(iv)	Patterns of rainfall in the region;	See appendices in RFI and CMS Reports for MDA H.	Appendix B-2.0 of MDA H RFI Report
§264.94(b)(2)(v)	Proximity of regulated unit to surface waters;	See RFI and CMS Reports for MDA H.	Section 3.0 and Appendices B-3.0 and B-4.0 of the MDA H RFI Report, and Section 2.0 of MDA H CMS Report
§264.94(b)(2)(vi)	Current and future uses of surface waters in the area and any water quality standards established for those surface waters;	Information regarding surface water use, if not already described will be developed.	Future MDA H CMI Plan
§264.94(b)(2)(vii)	Existing surface water quality, including other sources of contamination and their cumulative impact on surface-water quality;	The evaluation of LANL's surface water quality standards are considered in the evaluation of surface water and springs by the LANL Environmental Surveillance Program, the multisector CWA permit, as well as through ER Project characterization activities.	Section 3.0 and Appendices B-3.0 and B-4.0 of the MDA H RFI Report, and Section 2.0 of MDA H CMS Report

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.94(b)(2)(viii)	Potential for health risks caused by human exposure to waste constituents;	A present day human health risk screening assessment was completed and presented in the MDA H RFI Report. Results showed no unacceptable risk to human receptors. The CMS Report for MDA H will provide results of a future human health risk assessment, including potential for contaminant migration and the site conceptual model.	Section 4.0 of the MDA H RFI and Section 3.0 of the MDA H CMS Report
§264.94(b)(2)(ix)	Potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and	A present day ecological risk screening assessment was completed and presented in the MDA H RFI Report. Results showed no unacceptable risk to ecological receptors. The CMS Report for MDA H will provide results of a future ecological risk assessment, including potential for contaminant migration and the site conceptual model.	Section 4.0 of the MDA H RFI and Section 3.0 of the MDA H CMS Report
§264.94(b)(2)(x)	Persistence and permanence of potential adverse effects.	See results of risk assessment in MDA H CMS Report	Section 4.0 of the MDA H RFI and Section 3.0 of the MDA H CMS Report
§264.94(c)	In making any determination under paragraph (b) of this section about the use of ground water in the area around the facility the Secretary will consider any identification of underground sources of drinking water and exempted aquifers made under §144.8 of this chapter.	NA	NA
§264.95	Point of compliance	In establishing a point of compliance, the limits of the waste management area can be delineated by circumscribing an imaginary line around more than one unit. The aggregate approach used in the Hydrogeologic Work Plan was intended to be consistent with this concept. As characterization efforts progress, the appropriateness of the aggregate boundary for TA-54 will be assessed.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.95(a)	The Secretary will specify in the facility permit the point of compliance at which the ground-water protection standard of §264.92 applies and at which monitoring must be conducted. The point of compliance is a vertical surface located at the hydraulically downgradient limit of the waste management area that extends down into the uppermost aquifer underlying the regulated units.	See above. The point of compliance is a vertical surface located at the hydraulically downgradient limit of the aggregate that extends down into the uppermost aquifer underlying the regulated units.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.95(b)	The waste management area is the limit projected in horizontal plane of the area on which waste will be placed during active life of a regulated unit.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.95(b)(1)	The waste management area includes horizontal space taken up by any liner, dike, or other barrier designed to contain waste in a regulated unit.	NA	NA
§264.95(b)(2)	If the facility contains more than one regulated unit, the waste management area is described by an imaginary line circumscribing the several regulated units.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.96	Compliance period		Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.96(a)	The Secretary will specify in the facility permit the compliance period during which the ground-water protection standard of §264.92 applies. The compliance period is the number of years equal to the active life of the waste management area (including any waste management activity prior to permitting, and the closure period.)	The implementing document for these alternative activities will specify the period during which concentration limits similar to groundwater protection standards and will be equivalent to the remaining active life of (including closure period) the waste management area.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.96(b)	The compliance period begins when the owner/operator initiates a compliance monitoring program meeting the requirements of §264.99.	This period would begin upon detection as defined in §264.91, and, if a more comprehensive program is needed to adequately address hazardous constituent concentration limits that have been prescribed, additional characterization and/or monitoring well installation will occur if appropriate.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.96(c)	If the owner/operator is engaged in a corrective action program at the end of the compliance period specified in paragraph (a) of this section, the compliance period is extended until the owner/operator can demonstrate that the ground-water protection standard of § 264.92 has not been exceeded for a period of three consecutive years.	This period will be extended for a period of 3 years, if at the end of the active life and closure period the concentration limits described above continue to be exceeded.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97	The owner/operator must comply with following requirements for any ground-water monitoring program developed to satisfy §264.98, §264.99, or §264.100:	Alternative requirements will be met there.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(a)	The ground-water monitoring system must consist of sufficient number of wells, installed at appropriate locations and depths to yield ground-water samples from the uppermost aquifer that:	All groundwater monitoring wells will be sufficient in number and placed at appropriate locations and depths in the uppermost aquifer as determined by characterization efforts performed during implementation of the Hydrogeologic Work Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(a)(1)	Represent the quality of background water that has not been affected by leakage from a regulated unit;	Background wells will be placed in an upgradient location determined to be unaffected by potential releases from the waste management area.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.97(a)(1)(i)	A determination of background quality may include sampling of wells that are not hydraulically upgradient of the waste management area where:	Should existing conditions preclude the location of background wells upgradient, other wells will be used. These wells will be capable of determining background quality passing the aggregate boundary. This determination will be made in part by ongoing characterization efforts establishing groundwater gradient, flow directions, potential transport mechanisms, and waste-specific migration characteristics.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(a)(1)(i)(A)	Hydrogeologic conditions do not allow the owner/operator to determine what wells are hydraulically upgradient; and	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(a)(1)(i)(B)	Sampling at other wells will provide an indication of background ground-water quality that is representative or more representative than that provided by the upgradient wells; and	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(a)(2)	Represent the quality of groundwater passing the point of compliance.	The above-mentioned geologic, hydrologic, and waste characteristics will be considered in determining the representativeness of the groundwater passing the downgradient aggregate boundary and the monitoring system's capability of detecting contamination if hazardous waste or hazardous constituents migrate from the aggregate to the uppermost aquifer.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(a)(3)	Allow for the detection of contamination when hazardous waste or hazardous constituents have migrated from the waste management area to the uppermost aquifer.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(b)	If a facility contains more than one regulated unit, separate ground-water monitoring systems are not required for each unit provided that provisions for sampling the ground water in the uppermost aquifer will enable detection and measurement at the compliance point of hazardous constituents from the regulated units that have entered the ground water in the uppermost aquifer.	Consistent with establishing a point of compliance by circumscribing an imaginary line around more than one unit, a groundwater monitoring system capable of detecting and measuring hazardous constituents at the aggregate boundary will meet the intent of this requirement.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.97(c)	All monitoring wells must be cased in a manner that maintains the integrity of the monitoring-well bore hole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of ground water samples. The annular space (i.e., the space between the borehole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the ground water.	The integrity of the monitoring well borehole will be maintained by casing in a manner most appropriate for the use and surrounding subsurface environment. Screen materials should be selected based on compatibility w geochemistry and long-term structural integrity. Well casing size should be determined based on the size of purging and equipment necessary to sample the well and the depth of the well. Filter pack material should be inert (i.e., silica sand). Gravel filters are compatible with screen and subsurface. Annular space should be sealed with materials compatible with the subsurface and have a permeability one to two orders of magnitude less than the surrounding formation. A cement and bentonite mixture, bentonite chips or antishrink cement mixtures can be used in the unsaturated zone and below the frost line. The cap should consist of concrete blending into an apron extending at least three feet from the outer edge of the borehole. Remaining annular space should be sealed with expanding cement. A suitable threaded or flanged cap or compression seal should then be placed and locked.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(d)	The groundwater monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide a reliable indication of ground-water quality below the waste management area. At a minimum, the program must include procedures and techniques for:	Groundwater sampling and analysis procedures will be in written form and will address the following:	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(d)(1)	Sample collection;	1) Groundwater level measurements will be determined prior to collection of sample in accordance with a written procedure describing level of accuracy, measurement reference points, required equipment decontamination, and time period measured. 2) Water collection will occur in accordance with a written procedure describing sampling devices and procedures for use and decontamination, well evacuation volumes and procedures, field measurements and appropriate sample container types.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(d)(2)	Sample preservation and shipment;	SW 846 requirements will be followed to ensure appropriate preservation and temperature controls are utilized.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(d)(3)	Analytical procedures; and	SW 846 or other approved analytical methods, holding times and approved QA/QC analytical procedures will be used.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.97(d)(4)	Chain-of-Custody control.	Chain-of-custody will include: sample number, time and date; collector's signature; sample type; well identification; number of containers; parameters to be analyzed; signatures of subsequent handlers; inclusive dates of possession; storage temperature at shipment and receipt; and verification of temperature control upon receipt at analytical laboratory.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(e)	The ground-water monitoring program must include sampling and analytical methods appropriate for ground-water sampling and that accurately measure hazardous constituents in ground-water samples.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(f)	The ground-water monitoring program must include determination of the ground-water surface elevation each time ground water is sampled.	Groundwater levels will be determined each time water is sampled.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(g)	In detection monitoring or where appropriate in compliance monitoring, data on each hazardous constituent specified in the permit will be collected from background wells and wells at the compliance point(s). The number and kinds of samples collected to establish background shall be appropriate for the form of statistical test employed, following generally accepted statistical principles. Sample size shall be as large as necessary to ensure with reasonable confidence that a contaminant release to ground water from a facility will be detected. The owner or operator will determine an appropriate sampling procedure and interval for each hazardous constituent listed in the facility permit which shall be specified in the unit permit upon approval by the Secretary. The sampling procedure shall be:	Data will be collected that is appropriate for the statistical methodology applied, sufficient in sample size and utilizes sampling procedures and frequencies of sample collection to ensure that potential contaminant release(s) to groundwater from the waste management unit(s) can be detected.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(g)(1)	A sequence of at least four samples, taken at an interval that assures, to the greatest extent technically feasible, that an independent sample is obtained, by reference to the uppermost aquifer's effective porosity, hydraulic conductivity, and hydraulic gradient, and the fate and transport characteristics of the potential contaminants, or	An adequate number of samples will be collected at appropriate frequencies to ensure representativeness considering aquifer and potential contaminant characteristics. Information such as retardation potential for metals and organics, and transport time based on groundwater velocity and constituent mobility will be considered in developing the sampling procedure.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(g)(2)	An alternate sampling procedure proposed by the owner/operator and approved by the Secretary.	Should an alternative to the sampling procedure described above be more appropriate, it will be proposed.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.97(h)	The owner/operator will specify one of the following statistical methods to be used in evaluating ground-water monitoring data for each hazardous constituent which will be specified in the unit permit. The statistical test chosen shall be conducted separately for each hazardous constituent in each well. Where practical quantification limits (pql's) are used in any of the following statistical procedures to comply with §264.97(i)(5), the pql must be proposed by the owner or operator and approved by the Secretary. Use of any of the following statistical methods must be protective of human health and the environment and must comply with the performance standards outlined in paragraph (i) of this section.	One of the statistical methods described in §264.97(h) or an alternative approved by the Secretary will be chosen to evaluate groundwater monitoring data. It is premature at this time to prescribe a specific method until adequate characterization has been performed.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(h)(1)	A parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(h)(2)	An analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(h)(3)	A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(h)(4)	A control chart approach that gives control limits for each constituent.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(h)(5)	Another statistical test method submitted by the owner or operator and approved by the Secretary.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(i)	Any statistical method chosen under §264.97(h) for specification in the unit permit shall comply with the following performance standards, as appropriate:	The appropriate performance standard used for the statistical method applied will be consistent with those prescribed in §264.97(i).	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.97(i)(1)	The statistical method used to evaluate ground-water monitoring data shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the owner or operator to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the constituents differ, more than one statistical method may be needed.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(i)(2)	If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a ground-water protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experimentwise error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals or control charts.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(i)(3)	If a control chart approach is used to evaluate ground-water monitoring data, the specific type of control chart and its associated parameter values shall be proposed by the owner or operator and approved by the Secretary if he or she finds it to be protective of human health and the environment.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(i)(4)	If a tolerance interval or a prediction interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be proposed by the owner or operator and approved by the Secretary if it finds these parameters to be protective of human health and the environment. These parameters will be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.97(i)(5)	The statistical method shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any practical quantification limit (pql) approved by the Secretary under §264.97(h) that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(i)(6)	If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.97(j)	Ground-water monitoring data collected in accordance with paragraph (g) of this section including actual levels of constituents must be maintained in the facility operating record. The Secretary will specify in the permit when the data must be submitted for review.	Groundwater monitoring data obtained will be maintained in the facility records.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98	An owner/operator required to establish a detection monitoring program under this subpart must, at a minimum, discharge the following responsibilities:	Upon completion of adequate characterization through the Hydrogeologic Work Plan, and a determination that monitoring would be appropriate, the detection-type monitoring prescribed in §264.98 would be initiated.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(a)	The owner/operator must monitor for indicator parameters (e.g., specific conductance, total organic carbon, or total organic halogen), waste constituents, or reaction products that provide a reliable indication of the presence of hazardous constituents in ground water. The Secretary will specify the parameters or constituents to be monitored in the facility permit, after considering the following factors:	As a result of sampling performed during the four events following well installation under the Hydrogeologic Work Plan, indicator parameters, waste constituents or reaction products will be prescribed that consider the following:	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(a)(1)	The types, quantities, and concentrations of constituents in wastes managed at the regulated unit;	Waste information has been obtained and reviewed, identifying hazardous constituents, concentrations, and waste volumes during the RFI/CMS process.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(a)(2)	The mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the waste management area;	Further refinement of the hydrogeologic regime at TA-54, and the behavior of hazardous constituents in the unsaturated zone will be developed and reported through the Hydrogeologic Work Plan activities and the RFI/CMS process. Substantial information regarding these issues has already been provided in the Hydrogeologic Assessment of TA-54, Areas L and G, the Performance Assessment, and the RFI Reports for MDAs G, H and L.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.98(a)(3)	The detectability of indicator parameters, waste constituents, and reaction products in ground water; and	Based on data collected during the four sampling events following well installation under the Hydrogeologic Work Plan, detectability of indicator parameters, waste constituents and reaction products will be established using SW 846 or Secretary approved methodologies and detection limits.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(a)(4)	The concentrations or values and coefficients of variation of proposed monitoring parameters or constituents in ground-water background values.	Considerations for establishing concentrations and coefficients of variance of background parameters or constituents include: location of the unit, groundwater flow direction, depth to groundwater, appropriate number and location of background wells, available geologic and hydrologic information, drilling methods, well installation details, and sampling data.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(b)	Owner/operator must install a ground-water monitoring system at the compliance point as specified under §264.95. The ground-water monitoring system must comply with §264.97(a)(2), (b), and (c).	Should it be determined that a groundwater monitoring system will be necessary, installation of this system will consider: location data, geology and hydrology, drilling methods, flow direction and velocity, potential contaminant behavior, and well completion and development details. Much of this information for TA-54 has been developed already in the Hydrogeologic Assessment of TA-54, Areas L and G, the Performance Assessment, and the RFI Reports for MDAs G, H and L and will continue through ongoing efforts of the Hydrogeologic Work Plan and the CMS/CMI process. The system will be capable of collecting groundwater samples from wells constructed and located in such a manner so as to be representative of the quality of groundwater passing beneath TA-54 at the aggregate boundary. Vadose zone investigation including delineation of contaminant movement and potential impact can be used to enhance and/or supplement monitoring efforts as an early detection mechanism.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(c)	The owner/operator must conduct ground-water monitoring for each chemical parameter and hazardous constituent specified in the permit pursuant to paragraph (a) of this section in accordance with §264.97(g), and maintain a record of ground-water analytical data as measured and in a form necessary for the determination of statistical significance under §264.97(h).	Samples will be collected and analyzed for all relevant chemical parameters and hazardous constituents in such form as is appropriate for determination of statistical significance.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.98(d)	The Secretary will specify the frequencies for collecting samples and conducting statistical tests to determine whether there is statistically significant evidence of contamination for any parameter or hazardous constituent specified in the permit under paragraph (a) of this section in accordance with §264.97(g). A sequence of at least four samples from each well (background and compliance wells) must be collected at least semi-annually during detection monitoring.	An appropriate frequency for sample collection and statistical analysis will be proposed that will be capable of determining statistically significant evidence of contamination as described in §264.98(d).	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(e)	The owner/operator must determine the ground-water flow rate and direction in the uppermost aquifer must be determined at least annually.	Groundwater flow rate and direction in the upper-most aquifer will be determined and reevaluated annually.	Future MDA H CMI Plan
§264.98(f)	The owner/operator must determine whether there is statistically significant evidence of contamination for any chemical parameter of hazardous constituent specified in the permit pursuant to paragraph (a) of this section at a frequency specified under paragraph (d) of this section.	Collect and analyze samples, evaluate data using appropriate statistical methodology and compare groundwater quality between the upgradient and downgradient wells at the aggregate boundary to determine whether statistically significant evidence of contamination exists within a reasonable timeframe.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(f)(1)	In determining whether statistically significant evidence of contamination exists, the owner/operator must use the method(s) specified in the permit under §264.97(h). These method(s) must compare data collected at the compliance point(s) to the background ground-water quality data.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(f)(2)	The owner/operator must determine whether there is statistically significant evidence of contamination at each monitoring well as the compliance point within a reasonable period of time after completion of sampling. The facility permit will specify what period of time is reasonable, based on the complexity of the statistical test and the availability of laboratory facilities to perform the analysis of ground-water samples.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(g)	If the owner/operator determines pursuant to paragraph (f) of this section that there is statistically significant evidence of contamination for chemical parameters or hazardous constituents specified pursuant to paragraph (a) of this section at any monitoring well at the compliance point, he or she must:	If statistically significant evidence of contamination for established chemical parameters or hazardous constituents exists, notification will be made and ground water wells will be sampled for Appendix IX constituents. If present and confirmed with a second analysis within the timeframes described in §264.98(g), these constituents will be used in a more comprehensive monitoring program.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.98(g)(1)	Notify the Secretary of this finding in writing within seven days. The notification must indicate what chemical parameters or hazardous constituents have shown statistically significant evidence of contamination;	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(g)(2)	Immediately sample the ground water in all monitoring wells and determine whether constituents in the list of Appendix IX of part 264 are present, and if so, in what concentration.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(g)(3)	For any Appendix IX compounds found in the analysis pursuant to paragraph (g)(2) of this section, resample within one month and repeat the analysis for those compounds detected. If the results of the second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring. If groundwater is not resampled for the compounds found pursuant to paragraph (g)(2) of this section, the hazardous constituents found during this initial Appendix IX analysis will form the basis for compliance monitoring.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(g)(4)	Within 90 days, submit to the Secretary an application for a permit modification to establish a compliance monitoring program meeting the requirements of §264.99. The application must include the following information:	Within 90 days, a request for modification of an enforceable document will be submitted to establish a more comprehensive monitoring program. It will include:	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(g)(4)(i)	An identification of the concentration or any Appendix IX constituent detected in the ground water at each monitoring well at the compliance point;	Appendix IX constituents and associated concentrations confirmed in downgradient aggregate boundary wells;	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(g)(4)(ii)	Any proposed changes to the ground-water monitoring system at the facility necessary to meet the requirements of §264.99;	Any proposed modifications/enhancements to the existing groundwater monitoring system if necessary:	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(g)(4)(iii)	Any proposed additions or changes to the monitoring frequency, sampling and analysis procedures or methods, or statistical methods used at the facility necessary to meet the requirements of §264.99;	Any proposed changes to monitoring frequency, sampling and analysis procedures or statistical methods, if necessary to address provisions of the more comprehensive monitoring program.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(g)(4)(iv)	For each hazardous constituent detected at the compliance point, a proposed concentration limit under §264.94(a) (1) or (2), or a notice of intent to seek an alternate concentration limit under §264.94(b); and	For hazardous constituents detected (as defined in §264.91(a)(1)), either background concentrations, maximum concentration limits or alternate concentration limits (ACLs) (or the intent to demonstrate ACLs) will be proposed.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.98(g)(5)	Within 180 days, submit to the Secretary:	Within the specified time frame of 180 days, unless an alternative approach is more appropriate, submit to the Secretary the following:	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(g)(5)(i)	All data necessary to justify an alternate concentration limit sought under §264.94(b); and	Consideration of geologic and hydrologic conditions, waste inventory, receptor location(s), travel time, and degradation mechanisms may be included in the justification.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(g)(5)(ii)	An engineering feasibility plan for a corrective action program necessary to meet the requirement of §264.100, unless:	A feasibility plan for a groundwater corrective action program will be developed during the CMS/CMI process unless:	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(g)(5)(ii)(A)	All hazardous constituents identified under paragraph (g)(2) of this section are listed in Table 1 of §264.94 and their concentrations do not exceed the respective values given in that Table; or	Concentrations of hazardous constituents are not greater than MCLs; or	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(g)(5)(ii)(B)	The owner or operator has sought an alternate concentration limit under §264.94(b) for every hazardous constituent identified under paragraph (g)(2) of this section.	An ACL demonstration has been submitted for all constituents found.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(g)(6)	If the owner/operator determines that, pursuant to paragraph (f) of this section, there is a statistically significant difference for chemical parameters or hazardous constituents specified pursuant to paragraph (a) of this section at any monitoring well at the compliance point, he/she demonstrate that a source other than a regulated unit caused the contamination or that the detection is an artifact caused by an error in sampling, analysis, or statistical evaluation or natural variation in the ground water. The owner/operator may make a demonstration under this paragraph in addition to, or in lieu of, submitting a permit modification application under paragraph (g)(4) of this section; however, owner/operator is still required to submit a permit modification application within the time specified in paragraph (g)(4) of this section unless the demonstration made under this paragraph successfully shows that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. In making this demonstration, the owner/operator, must:	If contamination is detected but thought to have migrated from somewhere other than the TA-54 aggregate, was caused by sampling and analysis and/or statistical artifacts, or natural variations in groundwater, notification will be provided to the Secretary that a demonstration will be made, a demonstration report submitted, and any necessary modifications to the enforceable document requested to address appropriate changes to the monitoring program. Timeframes for submittals will be consistent with those established in §264.98(g)(6) and monitoring will continue.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.98(g)(6)(i)	Notify the Secretary in writing within seven days of determining statistically significant evidence of contamination at the compliance point that he intends to make a demonstration under this paragraph;	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(g)(6)(ii)	Within 90 days, submit a report to the Secretary which demonstrates that a source other than a regulated unit caused the contamination or that the contamination resulted from error in sampling, analysis, or evaluation;	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(g)(6)(iii)	Within 90 days, submit to the Secretary an application for a permit modification to make any appropriate changes to the detection monitoring program facility; and	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(g)(6)(iv)	Continue to monitor in accordance with the detection monitoring program established under this section.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.98(h)	If the owner/operator determines that the detection monitoring program no longer satisfies the requirements of this section, he/she must within 90 days, submit an application for a permit modification to make any appropriate changes to the program.	A modification to the enforceable document will be requested if the monitoring prescribed in this program is no longer appropriate.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99	An owner/operator required to establish a compliance monitoring program under this subpart must, at a minimum, discharge the following responsibilities:	Should hazardous constituents be "detected" (consistent with §264.91(a)(1)) resulting in the subsequent development of concentration limits consistent with §264.93 and §264.94, a more comprehensive monitoring program will be established that determines compliance with these limits. Concentrations will be measured at the aggregate boundary for the period of time equivalent to the remaining active life of the waste management area (including closure period).	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(a)	The owner/operator must monitor the ground water to determine whether regulated units are in compliance with the ground-water protection standard under §264.92. The Secretary will specify the ground-water protection standard in the facility permit, including:	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(a)(1)	A list of the hazardous constituents identified under §264.93;	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.99(a)(2)	Concentration limits under §264.94 for each of those hazardous constituents;	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(a)(3)	The compliance point under §264.95; and	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(a)(4)	The compliance period under §264.96.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(b)	The owner/operator must install a ground-water monitoring system at the compliance point as specified under §264.95. The ground-water monitoring system must comply with §264.97(a)(2), (b), and (c).	Installation of a more comprehensive monitoring system will consider: location data, geology and hydrology, drilling methods, flow direction and velocity, potential contaminant behavior, and well completion and development details. Much of this information for TA-54 has been developed already in the Hydrogeologic Assessment of TA-54, Areas L and G, the Performance Assessment, and the RFI Reports for MDAs G, H and L and will continue through ongoing efforts of the Hydrogeologic Work Plan and the CMS/CMI process. The system will be capable of collecting groundwater samples from wells constructed and located in such a manner so as to be representative of the quality of groundwater passing beneath TA-54 at the aggregate boundary.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(c)	The Secretary will specify the sampling procedures and statistical methods appropriate for the constituents and the facility, consistent with §264.97(g) and (h).	Samples will be collected and analyzed for all relevant chemical parameters and hazardous constituents in such form as is appropriate for determination of statistical significance using appropriate sampling procedures and statistical methods.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(c)(1)	The owner/operator must conduct a sampling program for each chemical parameter or hazardous constituent in accordance with §264.97(g).	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(c)(2)	The owner/operator must record ground-water analytical data as measured and in form necessary for the determination of statistical significance under §264.97(h) for the compliance period of the facility.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.99(d)	The owner/operator must determine whether there is statistically significant evidence of increased contamination for any chemical parameter or hazardous constituent specified in the permit, pursuant to paragraph (a) of this section, at a frequency specified under paragraph (f) under this section.	Collect and analyze samples, evaluate data using appropriate statistical methodology and compare groundwater quality between the upgradient and downgradient wells at the aggregate boundary to determine whether statistically significant evidence of increased contamination exists within a reasonable timeframe.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(d)(1)	In determining whether statistically significant evidence of increased contamination exists, owner/operator must use the method(s) specified in the permit under §264.97(h). The methods(s) must compare data collected at the compliance point(s) to a concentration limit developed in accordance with §264.94.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(d)(2)	The owner/operator must determine whether there is statistically significant evidence of increased contamination at each monitoring well at the compliance point within a reasonable time period after completion of sampling. The Secretary will specify that time period in the facility permit, after considering the complexity of the statistical test and the availability of analytical laboratories to perform the analysis of ground-water samples.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(e)	The owner/operator must determine the ground-water flow rate and direction in the uppermost aquifer at least annually.	Groundwater flow rate and direction in the uppermost aquifer will be determined and reevaluated annually.	Future MDA H CMI Report
§264.99(f)	The Secretary will specify the frequencies for collecting samples and conducting statistical tests to determine statistically significant evidence of increased contamination in accordance with §264.97(g). A sequence of at least four samples from each well (background and compliance wells) must be collected at least semi-annually during the compliance period of the facility.	An appropriate frequency for sample collection and statistical analysis will be proposed that will be capable of determining statistically significant evidence of increased contamination as described in §264.99(f).	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.99(g)	Owner/operator must analyze samples from all monitoring wells at the compliance point for all constituents contained in Appendix IX of Part 264 at least annually to determine whether additional hazardous constituents are present in the uppermost aquifer and, if so, at what concentration, pursuant to procedures in §264.98(f). If the owner/operator finds Appendix IX constituents in the ground water that are not already identified in the permit as monitoring constituents, the owner/operator may resample within one month and repeat the Appendix IX analysis. If the second analysis confirms the presence of new constituents, the owner/operator must report the concentration of these additional constituents to the Secretary within seven days after the completion of the second analysis and add them to the monitoring list. If the owner/operator chooses not to resample, then he or she must report the concentrations of these additional constituents to the Secretary within seven days after completion of the initial analysis and add them to the monitoring list.	If annual sampling for all Appendix IX constituents indicates new constituents that are not already addressed statistically exceed background, and resampling within one month confirms this, the Secretary will be notified and the new constituents will be added to the monitoring list.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(h)	If the owner/operator determines pursuant to paragraph (d) of this section that any concentration limits under §264.94 are being exceeded at any monitoring well at the point of compliance, must:	If it has been determined that a statistically significant increase in contamination due to an exceedance of the previously established concentration limits has occurred at the downgradient aggregate boundary, the Secretary will be notified and a modification to the enforceable document requested to establish a corrective action program. It will include the actions necessary to correct the increase in contamination and a plan for a groundwater monitoring program to demonstrate the effectiveness of the action. An analysis of applicable remedial technologies will be performed through the CMS process, and the capabilities of the existing groundwater monitoring system will be assessed. Modifications/enhancements to the existing system will be proposed if necessary.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(h)(1)	Notify the Secretary of this finding in writing within seven days. The notification must indicate what concentration limits have been exceeded.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.99(h)(2)	Submit to the Secretary an application for a permit modification to establish a corrective action program meeting the requirements of §264.100 within 180 days, or within 90 days if an engineering feasibility study has been previously submitted to the Secretary under §264.98(h)(5). The application must at a minimum include the following information:	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(h)(2)(i)	A detailed description of corrective actions that will achieve compliance with the ground-water protection standard specified in the permit under paragraph (a) of this section; and	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(h)(2)(ii)	A plan for a ground-water monitoring program that will demonstrate the effectiveness of the corrective action. Such a ground-water monitoring program may be based on a compliance monitoring program developed to meet the requirements of this section.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(i)	If the owner/operator determines, pursuant to paragraph (d) of this section, that the ground-water concentration limits under this section are being exceeded at any monitoring well at the point of compliance, may demonstrate that a source other than a regulated unit caused the contamination or that the detection is an artifact caused by an error in sampling, analysis, or statistical evaluation or natural variation in the ground water. In making a demonstration under this paragraph, the owner/operator must:	If contamination is detected but thought to have migrated from somewhere other than the TA-54 aggregate, was caused by sampling and analysis and/or statistical artifacts, or natural variations in groundwater, notification will be provided to the Secretary that a demonstration will be made, a demonstration report submitted, and any necessary modifications to the enforceable document requested to address appropriate changes to the monitoring program. Timeframes for submittals will be consistent with those established in §264.99(i) and monitoring will continue.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(i)(1)	Notify the Secretary in writing within seven days that he intends to make a demonstration under this paragraph;	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(i)(2)	Within 90 days, submit a report to the Secretary which demonstrates that a source other than a regulated unit caused the standard to be exceeded or that the apparent noncompliance with the standards resulted from error in sampling, analysis, or evaluation;	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(i)(3)	Within 90 days, submit an application for a permit modification to the Secretary to make any appropriate changes to the compliance monitoring program at the facility; and	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.99(i)(4)	Continue to monitor in accord with the compliance monitoring program established under this section.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.99(j)	If the owner/operator determines that the compliance monitoring program no longer satisfies the requirements of this section, must, within 90 days, submit an application for a permit modification to make any appropriate changes to the program.	A modification to the enforceable document will be requested if the monitoring prescribed in this program is no longer appropriate.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.100	An owner/operator required to establish a corrective action program under this subpart must, at a minimum, discharge the following responsibilities:	Should hazardous constituent concentration levels be exceeded, a program that takes action to address the statistically significant increase identified will be established. Concentrations will be measured at the aggregate boundary for the period of time equivalent to the remaining active life of the waste management area (including closure period).	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.100(a)	Owner/operator must take corrective action to ensure that regulated units are in compliance with the ground-water protection standard under §264.92. The Secretary will specify the ground-water protection standard in the facility permit, including:	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.100(a)(1)	A list of the hazardous constituents identified under §264.93;	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.100(a)(2)	Concentration limits under §264.94 for each of those hazardous constituents;	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.100(a)(3)	The compliance point under §264.95; and	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.100(a)(4)	The compliance period under §264.96.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.100(b)	The owner/operator must implement a corrective action program that prevents hazardous constituents from exceeding their respective concentration limits at the compliance point by removing the hazardous waste constituents or treating them in place. The permit will specify the specific measures that will be taken.	A program will be implemented to prevent hazardous constituent concentration exceedances at the downgradient aggregate boundary that considers: contaminant distribution and mobility, additional characterization and/or monitoring needs (including vadose zone investigation), source term removal, and applicable remedial techniques.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.100(c)	The owner/operator must begin corrective action within a reasonable time period after the ground-water protection standard is exceeded. The Secretary will specify that time period in the facility permit. If a facility permit includes a corrective action program in addition to a compliance monitoring program, the permit will specify when the corrective action will begin and such a requirement will operate in lieu of §264.99(i)(2).	Corrective action will begin within a reasonable time period after hazardous constituent concentration limits have been exceeded and will be conducted pursuant to the requirements established in the above-referenced corrective action program.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.100(d)	In conjunction with a corrective action program, owner/operator must establish and implement a ground-water monitoring program to demonstrate the effectiveness of the corrective action program. Such a monitoring program may be based on the requirements for a compliance monitoring program under §264.99 and must be as effective as that program in determining compliance with the ground-water protection standard under §264.92 and in determining the success of a corrective action program under paragraph (e) of this section, where appropriate.	A groundwater monitoring program to demonstrate the effectiveness of the corrective action will be established and implemented. It will be based on considerations identified in the corrective action program and capable of detecting statistically significant exceedances in previously established hazardous constituent concentration limits. Additional monitoring wells may be installed and sampled if necessary.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.100(e)	In addition to the other requirements of this section, owner/operator must conduct a corrective action program to remove or treat in place any hazardous constituents under §264.93 that exceed concentration limits under §264.94 in groundwater:	The corrective action will also address hazardous constituents that exceed the concentration limits between the downgradient aggregate boundary and the downgradient property boundary, and off-site. Removal or in situ treatment of such constituents will occur in a reasonable time period, and, if off site, where necessary to protect human health and the environment. Corrective action can cease once limits are no longer exceeded.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.100(e)(1)	Between the compliance point under §264.95 and the downgradient property boundary; and	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.100(e)(2)	Beyond the facility boundary, where necessary to protect human health and the environment, owner/operator demonstrates to the satisfaction of the Secretary that, despite the owner's or operator's best efforts, the owner or operator was unable to obtain the necessary permission to undertake such action. The owner/operator is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases will be determined on a case-by-case basis.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.100(e)(3)	Corrective action measures under this paragraph must be initiated and completed within a reasonable period of time considering the extent of contamination.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.100(e)(4)	Corrective action measures under this paragraph may be terminated once the concentration of hazardous constituents under §264.93 is reduced to levels below their respective concentration limits under §264.94.	See above	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.100(f)	The owner/operator must continue corrective action measures during the compliance period to the extent necessary to ensure that the ground-water protection standard is not exceeded. If the owner or operator is conducting corrective action at the end of the compliance period, he must continue that corrective action for as long as necessary to achieve compliance with the ground-water protection standard. The owner/operator may terminate corrective action measures taken beyond the period equal to the active life of the waste management area (including the closure period) if he can demonstrate, based on data from the ground-water monitoring program under paragraph (d) of this section, that the ground-water protection standard of §264.92 has not been exceeded for a period of three consecutive years.	Corrective action measures will continue until hazardous constituent concentration limits are no longer exceeded during the period equivalent to the remaining active life of the waste management area (including closure period). If corrective action is still occurring at the end of this period, it will continue until concentration limits are no longer exceeded for 3 consecutive years.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.100(g)	The owner/operator must report in writing to the Secretary on the effectiveness of the corrective action program. The owner/operator must submit these reports semi-annually.	Semi-annual reports on the effectiveness of the corrective action will be provided to the Secretary.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.100(h)	The owner/operator determines that the corrective action program no longer satisfies the requirements of this section, he must, within 90 days, submit an application for a permit modification to make any appropriate changes to the program.	A modification to the enforceable document will be requested if it is determined that this program is no longer appropriate.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.110(c)	The Secretary may replace all or part of the requirements of this subpart (and the unit-specific standards referenced in §264.111(c) applying to a regulated unit), with alternative requirements set out in a permit or enforceable document where the Secretary determines that:	See the CMS report for a general description of how the proposed corrective measure meets the closure and post-closure care requirements of 264.111 - 264.120. The approved CMI plan will describe in detail how the selected corrective measure meets closure/post-care requirements. Enforceable documents include Module VIII of LANL's Hazardous Waste Facility Permit and the CMS report and CMI plan for MDA H once they are approved.	Section 5.0 of the MDA H CMS Report
§264.110(c)(1)	The regulated unit is situated among SWMUs or AOCs, a release has occurred, and both the regulated unit and one or more SWMUs or AOCs are likely to have contributed to the release; and	MDA H meets the criteria for alternative requirements because the existing land-based unit (shaft 9) is situated among SWMUs (disposal shafts 1 - 8), a release has occurred, and the origin of the release is uncertain (details provided in RFI report).	Section 2.0 of the MDA H RFI Report and Section 1.0 of the MDA H CMS Report
§264.110(c)(2)	It is not necessary to apply the closure requirements of this subpart (and those referenced herein) because the alternative requirements will protect human health and the environment and will satisfy the closure performance standard of §264.111(a) and (b).	See the CMS report for a general description of how the proposed corrective measure meets applicable closure and post-closure care requirements of §264.111 - 264.120; details will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report
§264.111	Closure Performance Standard. Owner/operator must close the facility in a manner that:	This requirement refers to closure the entire facility - LANL. For MDA H only: alternative requirements specified in the CMS report and ultimately detailed in the approved CMI plan will protect human health and the environment by meeting the intent of closure performance standards.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.111(a)	Minimizes the need for further maintenance; and	For MDA H, see the CMS report for a general description of how the proposed corrective measure meets this closure requirement; details will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.111(b)	Controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere.	For MDA H, see the CMS report for a general description of how the proposed corrective measure meets this closure requirement; details will be provided in the approved CMI Plan. Leachate is defined as any liquid including suspended components in the liquid, that has percolated through or drained from hazardous waste.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.112(b)	Closure plan must identify steps necessary to perform partial and/or final closure of the facility at any point during its active life. The closure plan must include, at least:	The proposed corrective measure will be equivalent to a "partial closure" as defined in §260.10 for MDA H only (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.112(b)(8)).	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.112(b)(1)	A description of how each hazardous waste management unit at the facility will be closed in accordance with §264.111;	For MDA H, see the CMS report for a general description of how the proposed corrective measure meets this closure requirement (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.112(b)(8)); details will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.112(b)(2)	A description of how final closure of the facility will be conducted in accordance with §264.111. The description must identify the maximum extent of the operations which will be unclosed during the active life of the facility; and	This requirement refers to closure the entire facility - LANL. Not applicable to MDA H.	NA
§264.112(b)(3)	An estimate of the maximum inventory of hazardous wastes ever on-site over the active life of the facility and a detailed description of the methods to be used during partial closures and final closure, including, but not limited to, methods for removing, transporting, treating, storing, or disposing of all hazardous wastes, and identification of the type(s) of the off-site hazardous waste management units to be used, if applicable; and	For MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies this closure requirement (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.112(b)(8)); details will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.112(b)(4)	A detailed description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard; and	For MDA H, see the CMS report for a general description of the excavation alternative corrective measure (equivalent to clean closure). If the excavation corrective measure is selected, details will be provided in the approved CMI Plan following permit modification. Not applicable for containment corrective measure alternatives.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.112(b)(5)	A detailed description of other activities necessary during the closure period to ensure that all partial closures and final closure satisfy the closure performance standards, including, but not limited to, ground-water monitoring, leachate collection, and run-on and run-off control; and	Final closure refers to the entire facility - LANL. For MDA H only (partial closure): alternative requirements specified in the CMS report and ultimately detailed in the approved CMI plan will satisfy closure performance standards in accordance with alternative requirements of §264.90(f), 264.110(c) and 264.112(b)(8).	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.112(b)(6)	A schedule for closure of each hazardous waste management unit and for final closure of the facility. The schedule must include, at a minimum, the total time required to close each hazardous waste management unit and the time required for intervening closure activities which will allow tracking of the progress of partial and final closure. (For example, in the case of a landfill unit, estimates of the time required to treat or dispose of all hazardous waste inventory and of the time required to place a final cover must be included.)	For MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies this closure requirement. A schedule for implementing the selected corrective measure (that meets the intent of this closure requirement in accordance with alternative requirements §264.90(f), 264.110(c) and 264.112(b)(8)) will be included in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.112(b)(7)	For facilities that use trust funds to establish financial assurance under §264.143 or §264.145 and that are expected to close prior to the expiration of the permit, an estimate of the expected year of final closure.	NA	NA
§264.112(b)(8)	For facilities where the Secretary has applied alternative requirements at a regulated unit under §264.90(f), §264.110(d), and/or §264.140(d), either the alternative requirements applying to the regulated unit, or a reference to the enforceable document containing those alternative requirements.	For MDA H, see the CMS report for a general description of how the proposed corrective measure meets closure and post-closure care requirements. The approved CMI plan will describe in detail how the selected corrective measure meets closure/post-care requirements. Enforceable documents include Module VIII of LANL's Hazardous Waste Facility Permit and the CMS report and CMI plan for MDA H once they are approved.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.112(c)	The owner/operator must submit a written notification of or request for a permit modification to authorize a change in operating plans, facility design, or the approved closure plan in accordance with the applicable procedures in parts 124 and 270. The written notification or request must include a copy of the amended closure plan for review or approval by the Secretary.	For MDA H, any significant change to the approved selected corrective measure will require Secretary approval of a modification to the enforceable document prior to implementation in accordance with §264.112(c)(2)(iv).	Future request for mod. of enforceable document
§264.112(c)(1)	The owner/operator may submit a written notification or request to the Secretary for a permit modification to amend the closure plan at any time prior to the notification of partial or final closure of the facility.	For MDA H, any significant change to the approved selected corrective measure will require Secretary approval of a modification to the enforceable document prior to implementation in accordance with §264.112(c)(2)(iv).	Future request for mod. of enforceable document
§264.112(c)(2)	The owner/operator must submit a written notification of or request for a permit modification to authorize a change in the approved closure plan whenever:	For MDA H, any significant change to the approved selected corrective measure will require Secretary approval of a modification to the enforceable document prior to implementation in accordance with §264.112(c)(2)(iv).	Future request for mod. of enforceable document
§264.112(c)(2)(i)	Changes in operating plans or facility design affect the closure plan, or	For MDA H, any significant change to the approved selected corrective measure will require Secretary approval of a modification to the enforceable document prior to implementation in accordance with §264.112(c)(2)(iv).	Future request for mod. of enforceable document

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.112(c)(2)(ii)	There is a change in the expected year of closure, if applicable, or	For MDA H, any significant change to the approved selected corrective measure will require Secretary approval of a modification to the enforceable document prior to implementation in accordance with §264.112(c)(2)(iv).	Future request for mod. of enforceable document
§264.112(c)(2)(iii)	In conducting partial or final closure activities, unexpected events require a modification of the approved closure plan	For MDA H, any significant change to the approved selected corrective measure will require Secretary approval of a modification to the enforceable document prior to implementation in accordance with §264.112(c)(2)(iv).	Future request for mod. of enforceable document
§264.112(c)(2)(iv)	The owner/operator requests the Secretary to apply alternative requirements to a regulated unit under §264.90(f), §264.110(c), and/or § 264.140(d)	For MDA H, any significant change to the approved selected corrective measure will require Secretary approval of a modification to the enforceable document prior to implementation in accordance with §264.112(c)(2)(iv).	Future request for mod. of enforceable document
§264.112(c)(3)	The owner/operator must submit a written request for a permit modification including a copy of the amended closure plan for approval at least 60 days prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event has occurred which has affected the closure plan. If an unexpected event occurs during the partial or final closure period, the owner/operator must request a permit modification no later than 30 days after the unexpected event. An owner/operator of a surface impoundment or waste pile that intends to remove all hazardous waste at closure and is not otherwise required to prepare a contingent closure plan under §264.228(c)(1)(i) or §264.258(c)(1)(i), must submit an amended closure plan to the Secretary no later than 60 days from the date that the owner/operator or the Secretary determines that the hazardous waste management unit must be closed as a landfill, subject to the requirements of §264.310, or no later than 30 days from that date if the determination is made during partial or final closure. The Secretary will approve, disapprove, or mo	This requirement refers to closure the entire facility - LANL. Not applicable to MDA H.	NA
§264.112(c)(4)	The Secretary may request modifications to the plan under the conditions described in § 264.112(c)(2). The owner/operator must submit the modified plan within 60 days of the Secretary's request, or within 30 days if the change in facility conditions occurs during partial or final closure. Any modifications requested by the Secretary will be approved in accordance with the procedures in parts 124 and 270	For MDA H, any significant change to the approved selected corrective measure will require Secretary approval of a modification to the enforceable document prior to implementation in accordance with §264.112(c)(2)(iv).	Future request for mod. of enforceable document
§264.112(d)	Notification of partial closure and final closure.		

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.112(d)(1)	Owner/operator must notify Secretary in writing at least 60 days prior to the date on which he expects to begin closure of a surface impoundment, waste pile, land treatment or landfill unit, or final closure of a facility with such a unit. Owner/operator must notify the Secretary in writing at least 45 days prior to the date on which he expects to begin final closure of a facility with only treatment or storage tanks, container storage, or incinerator units to be closed. Owner/operator must notify the Secretary in writing at least 45 days prior to the date on which he expects to begin partial or final closure of a boiler or industrial furnace, whichever is earlier	For MDA H, the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.112(d)(2)	The date when it "expects to begin closure" must be either:	For MDA H, the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.112(d)(2)(i)	No later than 30 days after the date on which any hazardous waste management unit receives the known final volume of hazardous wastes, or if there is a reasonable possibility that the hazardous waste management unit will receive additional hazardous wastes, no later than one year after the date on which the unit received the most recent volume of hazardous wastes. If the owner/operator of a hazardous waste management unit can demonstrate to the Secretary that the hazardous waste management unit or facility has the capacity to receive additional hazardous wastes and it has taken all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements, the Secretary may approve an extension to this one-year limit; or	For MDA H, the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.112(d)(2)(ii)	For units meeting the requirements of §264.113(d), no later than 30 days after the date on which the hazardous waste management unit receives the known final volume of non-hazardous wastes, or if there is a reasonable possibility that the hazardous waste management unit will receive additional non-hazardous wastes, no later than one year after the date on which the unit received the most recent volume of non-hazardous wastes. If the owner/operator can demonstrate to the Secretary that the hazardous waste management unit has the capacity to receive additional non-hazardous wastes and it has taken, and will continue to take, all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements, the Secretary may approve an extension to this one-year limit.	NA	NA
§264.112(d)(3)	If the facility's permit is terminated, or if the facility is otherwise ordered, by judicial decree or final order under section 3008 of RCRA, to cease receiving hazardous wastes or to close, then the requirements of this paragraph do not apply. However, the owner/operator must close the facility in accordance with the deadlines established in §264.113	NA	NA
§264.112(e)	Nothing in this section shall preclude the owner/operator from removing hazardous wastes and decontaminating or dismantling equipment in accordance with the approved partial or final closure plan at any time before or after notification of partial or final closure	NA	NA
§264.113	Closure; Time allowed for closure		
§264.113(a)	Within 90 days after receiving the final volume of hazardous wastes, or the final volume of non-hazardous wastes if the owner/operator complies with all applicable requirements in paragraphs (d) and (e) of this section, at a hazardous waste management unit or facility, the owner/operator must treat, remove from the unit or facility, or dispose of on-site, all hazardous wastes in accordance with the approved closure plan. The Secretary may approve a longer period if the owner/operator complies with all applicable requirements for requesting a modification to the permit and demonstrates that:	For MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.113(a)(1)(i)	The activities required to comply with this paragraph will, of necessity, take longer than 90 days to complete; or	For MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.113(a)(1)(ii)(A)	The hazardous waste management unit or facility has the capacity to receive additional hazardous wastes, or has the capacity to receive non-hazardous wastes if the owner/operator complies with paragraphs (d) and (e) of this section; and	For MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.113(a)(1)(ii)(B)	There is a reasonable likelihood that the owner/operator or another person will recommence operation of the hazardous waste management unit or the facility within one year; and	For MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.113(a)(1)(ii)(C)	Closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and	For MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.113(a)(2)	The owner/operator has taken and will continue to take all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements.	For MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.113(b)	The owner/operator must complete partial and final closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of hazardous wastes, or the final volume of non-hazardous wastes if the owner or operator complies with all applicable requirements in paragraphs (d) and (e) of this section, at the hazardous waste management unit or facility. The Secretary may approve an extension to the closure period if the owner/operator complies with all applicable requirements for requesting a modification to the permit and demonstrates that:	For MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.113(b)(1)(i)	The partial or final closure activities will, of necessity, take longer than 180 days to complete; or	For MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.113(b)(1)(ii)(A)	The hazardous waste management unit or facility has the capacity to receive additional hazardous wastes, or has the capacity to receive non-hazardous wastes if the owner/operator complies with paragraphs (d) and (e) of this section; and	For MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.113(b)(1)(ii)(B)	There is reasonable likelihood that the owner/operator or another person will recommence operation of the hazardous waste management unit or the facility within one year; and	For MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.113(b)(1)(ii)(C)	Closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and	For MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.113(b)(2)	The owner/operator has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed but not operating hazardous waste management unit or facility, including compliance with all applicable permit requirements	For MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.113(c)	The demonstrations referred to in paragraphs (a)(1) and (b)(1) of this section must be made as follows:	For MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.113(c)(1)	The demonstrations in paragraph (a)(1) of this section must be made at least 30 days prior to the expiration of the 90-day period in paragraph (a) of this section; and	For MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.113(c)(2)	The demonstration in paragraph (b)(1) of this section must be made at least 30 days prior to the expiration of the 180-day period in paragraph (b) of this section, unless the owner/operator is otherwise subject to the deadlines in paragraph (d) of this section.	For MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.113(d)	The Secretary may allow an owner/operator to receive only non-hazardous wastes in a landfill, land treatment, or surface impoundment unit after the final receipt of hazardous wastes at that unit if:	NA	NA
§264.113(d)(1)	The owner/operator requests a permit modification in compliance with all applicable requirements in parts 270 and 124 of this title and in the permit modification request demonstrates that:	NA	NA
§264.113(d)(1)(i)	The unit has the existing design capacity as indicated on the part A application to receive non-hazardous wastes; and	NA	NA
§264.113(d)(1)(ii)	There is a reasonable likelihood that the owner or operator or another person will receive non-hazardous wastes in the unit within one year after the final receipt of hazardous wastes; and	NA	NA
§264.113(d)(1)(iii)	The non-hazardous wastes will not be incompatible with any remaining wastes in the unit, or with the facility design and operating requirements of the unit or facility under this part; and	NA	NA

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.113(d)(1)(iv)	Closure of the hazardous waste management unit would be incompatible with continued operation of the unit or facility; and	NA	NA
§264.113(d)(1)(v)	The owner/operator is operating and will continue to operate in compliance with all applicable permit requirements; and	NA	NA
§264.113(d)(2)	The request to modify the permit includes an amended waste analysis plan, ground-water monitoring and response program, human exposure assessment required under RCRA section 3019, and closure and post-closure plans, and updated cost estimates and demonstrations of financial assurance for closure and post-closure care as necessary and appropriate, to reflect any changes due to the presence of hazardous constituents in the non-hazardous wastes, and changes in closure activities, including the expected year of closure if applicable under § 264.112(b)(7), as a result of the receipt of non-hazardous wastes following the final receipt of hazardous wastes; and	NA	NA
§264.113(d)(3)	The request to modify the permit includes revisions, as necessary and appropriate, to affected conditions of the permit to account for the receipt of non-hazardous wastes following receipt of the final volume of hazardous wastes; and	NA	NA
§264.113(d)(4)	The request to modify the permit and the demonstrations referred to in paragraphs (d)(1) and (d)(2) of this section are submitted to the Secretary no later than 120 days prior to the date on which the owner/operator of the facility receives the known final volume of hazardous wastes at the unit, or no later than 90 days after the effective date of this rule in the state in which the unit is located, whichever is later.	NA	NA
§264.113(e)	Requirements for the owner/operator of a hazardous waste surface impoundment that is not in compliance with the liner and leachate collection system requirements.	NA	NA
§264.114	During the partial and final closure periods, all contaminated equipment, structures and soils must be properly disposed of or decontaminated unless otherwise specified in §§ 264.197, 264.228, 264.258, 264.280 or § 264.310. By removing any hazardous wastes or hazardous constituents during partial and final closure, the owner/operator may become a generator of hazardous waste and must handle that waste in accordance with all applicable requirements of part 262 of this chapter	For MDA H, see the CMS report for a general description of the excavation alternative corrective measure (equivalent to clean closure). If the excavation corrective measure alternative is selected, details will be provided in the approved CMI Plan following permit modification. Not applicable for the containment corrective measure alternatives.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.115	Within 60 days of completion of closure of each hazardous waste surface impoundment, waste pile, land treatment, and landfill unit, and within 60 days of the completion of final closure, the owner/operator must submit to the Secretary, by registered mail, a certification that the hazardous waste management unit or facility, as applicable, has been closed in accordance with the specifications in the approved closure plan. The certification must be signed by the owner or operator and by an independent registered professional engineer. Documentation supporting the independent registered professional engineer's certification must be furnished to the Secretary upon request until he releases the owner or operator from the financial assurance requirements for closure under §264.143(i).	Final closure refers to the entire facility - LANL. For MDA H only (partial closure): alternative requirements specified in the CMS report and ultimately detailed in the approved CMI plan will satisfy closure performance standards. Corrective measure implementation requirements specify that the owner/operator conduct inspections, reviews and acceptance testing in accordance with the construction quality assurance plan and submit routine progress reports to the Secretary. Corrective measure implementation requirements also dictate that the owner/operator prepare a corrective measure completion report that includes all supporting documentation confirming that the corrective measure was successfully implemented. This report must be certified by an independent professional(s) skilled in the appropriate discipline(s) and submitted to the Secretary See the CMS report for a general description of the how the corrective measure certification meets the intent of this closure requirement. The approved CMI plan will contain a detailed description of the certification process and criteria.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.116	No later than the submission of the certification of closure of each hazardous waste disposal unit, the owner/operator must submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the Secretary, a survey plat indicating the location and dimensions of landfills cells or other hazardous waste disposal units with respect to permanently surveyed benchmarks. This plat must be prepared and certified by a professional land surveyor. The plat filed with the local zoning authority, or the authority with jurisdiction over local land use, must contain a note, prominently displayed, which states the owner's or operator's obligation to restrict disturbance of the hazardous waste disposal unit in accordance with the applicable subpart G regulations.	For MDA H - this information will be provided to the land use authority, either DOE/LANL or a subsequent owner (if applicable). A survey plat prepared in accordance with 264.116 will be provided in the CMI completion report.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.117	Post-closure care and use of property		Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.117(a)(1)	Post-closure care for each hazardous waste management unit subject to the requirements of §§ 264.117 through 264.120 must begin after completion of closure of the unit and continue for 30 years after that date and must consist of at least the following:	This requirement applies to the containment corrective measure alternatives for MDA H. Activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.117(a)(1)(i)	Monitoring and reporting in accordance with the requirements of subparts F, K, L, M, N, and X of this part; and	This requirement applies to the containment corrective measure alternatives for MDA H. Activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.117(a)(1)(ii)	Maintenance and monitoring of waste containment systems in accordance with the requirements of subparts F, K, L, M, N, and X of this part.	For the containment corrective measure alternatives for MDA H, maintenance activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.) A description of the waste containment system monitoring systems are provided above in the Comment/Implementation of HSWA Activities column for Subpart F (§264.90 - 264.100 implemented through alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)).	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.117(a)(2)	Any time preceding partial closure of a hazardous waste management unit subject to post-closure care requirements or final closure, or any time during the post-closure period for a particular unit, the Secretary may, in accordance with the permit modification procedures in parts 124 and 270:	This requirement applies to the containment corrective measure alternatives for MDA H. Activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.117(a)(2)(i)	Shorten the post-closure care period applicable to the hazardous waste management unit, or facility, if all disposal units have been closed, if he finds that the reduced period is sufficient to protect human health and the environment (e.g., leachate or ground-water monitoring results, characteristics of the hazardous wastes, application of advanced technology, or alternative disposal, treatment, or re-use techniques indicate that the hazardous waste management unit or facility is secure); or	This requirement applies to the containment corrective measure alternatives for MDA H. The Secretary will always have the authority to change CMI plan requirements by modification of the enforceable document at any time, and will perform formal program-wide performance review every ten years at permit renewal.	Future request for mod. of enforceable document
§264.117(a)(2)(ii)	Extend the post-closure care period applicable to the hazardous waste management unit or facility if he finds that the extended period is necessary to protect human health and the environment (e.g., leachate or ground-water monitoring results indicate a potential for migration of hazardous wastes at levels which may be harmful to human health and the environment).	This requirement applies to the containment corrective measure alternatives for MDA H. The Secretary will always have the authority to change CMI plan requirements by modification of the enforceable document at any time, and will perform formal program-wide performance review every ten years at permit renewal.	Future request for mod. of enforceable document

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.117(b)	The Secretary may require, at partial and final closure, continuation of any of the security requirements of §264.14 during part or all of the post-closure period when:	This requirement applies to the containment corrective measure alternatives for MDA H. The Secretary will always have the authority to change CMI plan requirements by modification of the enforceable document at any time, and will perform formal program-wide performance review every ten years at permit renewal.	Future request for mod. of enforceable document
§264.117(b)(1)	Hazardous wastes may remain exposed after completion of partial or final closure; or	This requirement applies to the containment corrective measure alternatives for MDA H. The Secretary will always have the authority to change CMI plan requirements by modification of the enforceable document at any time, and will perform formal program-wide performance review every ten years at permit renewal.	Future request for mod. of enforceable document
§264.117(b)(2)	Access by the public or domestic livestock may pose a hazard to human health.	This requirement applies to the containment corrective measure alternatives for MDA H. The Secretary will always have the authority to change CMI plan requirements by modification of the enforceable document at any time, and will perform formal program-wide performance review every ten years at permit renewal.	Future request for mod. of enforceable document
§264.117(c)	Post-closure use of property on or in which hazardous wastes remain after partial or final closure must never be allowed to disturb the integrity of the final cover, liner(s), or any other components of the containment system, or the function of the facility's monitoring systems, unless the Secretary finds that the disturbance:	This requirement applies to the containment corrective measure alternatives for MDA H. The Secretary will always have the authority to change CMI plan requirements by modification of the enforceable document at any time, and will perform formal program-wide performance review every ten years at permit renewal.	Future request for mod. of enforceable document
§264.117(c)(1)	Is necessary to the proposed use of the property, and will not increase the potential hazard to human health or the environment; or	This requirement applies to the containment corrective measure alternatives for MDA H. The Secretary will always have the authority to change CMI plan requirements by modification of the enforceable document at any time, and will perform formal program-wide performance review every ten years at permit renewal.	Future request for mod. of enforceable document
§264.117(c)(2)	Is necessary to reduce a threat to human health or the environment.	This requirement applies to the containment corrective measure alternatives for MDA H. The Secretary will always have the authority to change CMI plan requirements by modification of the enforceable document at any time, and will perform formal program-wide performance review every ten years at permit renewal.	Future request for mod. of enforceable document

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.117(d)	All post-closure care activities must be in accordance with the provisions of the approved post-closure plan as specified in §264.118.	For the containment corrective measure alternatives evaluated for MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies post-closure care requirements (in accordance with alternative requirements §264.90(f) and 264.110(c)). A detailed description of how the selected corrective meets the intent of post-closure requirements will be provided in the approved MDA H CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.118	Post-Closure Plan, Amendment of Plan	For the containment corrective measure alternatives for MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.118(b)	For each hazardous waste management unit subject to the requirements of this section, the post-closure plan must identify the activities that will be carried on after closure of each disposal unit and the frequency of these activities, and include at least:	For the containment corrective measure alternatives for MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.118(b)(1)	A description of the planned monitoring activities and frequencies at which they will be performed to comply with subparts F, K, L, M, N, and X of this part during the post-closure care period; and	For the containment corrective measure alternatives for MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan. (See CMS plan for general description.) A description of the planned monitoring activities and frequencies at which they will be performed is provided above in the Comment/Implementation of HSWA Activities column for Subpart F (264.90 - 264.100 implemented through alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)).	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.118(b)(2)	A description of the planned maintenance activities, and frequencies at which they will be performed, to ensure:	For the containment corrective measure alternatives for MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.118(b)(2)(i)	The integrity of the cap and final cover or other containment systems in accordance with the requirements of subparts F, K, L, M, N, and X of this part; and	For the containment corrective measure alternatives for MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.118(b)(2)(ii)	The function of the monitoring equipment in accordance with the requirements of subparts, F, K, L, M, N, and X of this part; and	For the containment corrective measure alternatives for MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.118(b)(3)	The name, address, and phone number of the person or office to contact about the hazardous waste disposal unit or facility during the post-closure care period.	The name, address, and phone number of the office to contact about MDA H during the CMS/CMI period is: the U.S. Department of Energy, National Nuclear Security Administration, Office of Los Alamos Site Operations, 528 35th Street, Los Alamos, NM, 87544, (505) 667-5105.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.118(b)(4)	For facilities where the Secretary has applied alternative requirements at a regulated unit under §§264.90(f), 264.110(c), and/or §264.140(d), either the alternative requirements that apply to the regulated unit, or a reference to the enforceable document containing those requirements.	For the containment corrective measure alternatives for MDA H, activities and the implementation schedule for the selected corrective measure will be determined in the approved CMI plan (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). (See CMS plan for general description.)	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.118(c)	Until final closure of the facility, a copy of the approved post-closure plan must be furnished to the Secretary upon request, including request by mail. After final closure has been certified, the person or office specified in §264.188(b)(3) must keep the approved post-closure plan during the remainder of the post-closure period.	For MDA H, this requirement will be completed as part of the CMS/CMI corrective action process, (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). See CMS the report for a general description of how these requirements will met; details will be provided in the approved CMI plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.118(d)	The owner/operator must submit a written notification of or request for a permit modification to authorize a change in the approved post-closure plan in accordance with the applicable requirements in parts 124 and 270. The written notification or request must include a copy of the amended post-closure plan for review or approval by the Secretary.	Any significant change to the approved selected corrective measure, including post-CMI monitoring and maintenance requirements (applicable to the containment corrective measure alternatives) will require Secretary approval of a modification to the enforceable document prior to implementation in accordance with §264.118(d)(2)(iv). See CMS the report for a general description of how these requirements will met; details will be provided in the approved CMI plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.118(d)(1)	The owner/operator may submit a written notification or request to the Secretary for a permit modification to amend the post-closure plan at any time during the active life of the facility or during the post-closure care period.	LANL can petition to change post-CMI monitoring and maintenance requirements (applicable to the containment corrective measure alternatives) at any time, which will require Secretary approval of a modification to the enforceable document prior to implementation in accordance with §264.118(d)(2)(iv).	Future request for mod. of enforceable document
§264.118(d)(2)	The owner/operator must submit a written notification of or request for a permit modification to authorize a change in the approved post-closure plan whenever:	LANL can petition to change post-CMI monitoring and maintenance requirements (applicable to the containment corrective measure alternatives) at any time, which will require Secretary approval of a modification to the enforceable document prior to implementation in accordance with §264.118(d)(2)(iv).	Future request for mod. of enforceable document
§264.118(d)(2)(i)	Changes in operating plans or facility design affect the approved post-closure plan, or	LANL can petition to change post-CMI monitoring and maintenance requirements (applicable to the containment corrective measure alternatives) at any time, which will require Secretary approval of a modification to the enforceable document prior to implementation in accordance with §264.118(d)(2)(iv).	Future request for mod. of enforceable document
§264.118(d)(2)(ii)	There is a change in the expected year of final closure, if applicable, or	LANL can petition to change post-CMI monitoring and maintenance requirements (applicable to the containment corrective measure alternatives) at any time, which will require Secretary approval of a modification to the enforceable document prior to implementation in accordance with §264.118(d)(2)(iv).	Future request for mod. of enforceable document
§264.118(d)(2)(iii)	Events which occur during the active life of the facility, including partial and final closures, affect the approved post-closure plan.	LANL can petition to change post-CMI monitoring and maintenance requirements (applicable to the containment corrective measure alternatives) at any time, which will require Secretary approval of a modification to the enforceable document prior to implementation in accordance with §264.118(d)(2)(iv).	Future request for mod. of enforceable document
§264.118(d)(2)(iv)	The owner/operator requests the Secretary to apply alternative requirements to a regulated unit under §264.90(f), §264.110(c), and/or §264.140(d).	LANL can petition to change post-CMI monitoring and maintenance requirements (applicable to the containment corrective measure alternatives) at any time, which will require Secretary approval of a modification to the enforceable document prior to implementation in accordance with §264.118(d)(2)(iv).	Future request for mod. of enforceable document

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.118(d)(3)	The owner/operator must submit a written request for a permit modification at least 60 days prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event has occurred which has affected the post-closure plan. An owner/operator of a surface impoundment or waste pile that intends to remove all hazardous waste at closure and is not otherwise required to submit a contingent post-closure plan under §264.228(c)(1)(ii) and §264.258(c)(1)(ii) must submit a post-closure plan to the Secretary no later than 90 days after the date that the owner or operator or the Secretary determines that the hazardous waste management unit must be closed as a landfill, subject to the requirements of §264.310. The Secretary will approve, disapprove or modify this plan in accordance with the procedures in parts 124 and 270. In accordance with §270.32 of this chapter, the approved post-closure plan will become a permit condition.	Any significant change to the approved selected corrective measure, including post-CMI monitoring and maintenance requirements (applicable to the containment corrective measure alternatives) will require Secretary approval of a modification to the enforceable document prior to implementation in accordance with §264.118(d)(2)(iv). See CMS the report for a general description of how these requirements will met; details will be provided in the approved CMI plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan and future request for mod. of enforceable document
§264.118(d)(4)	The Secretary may request modifications to the plan under the conditions described in §264.118(d)(2). The owner/operator must submit the modified plan no later than 60 days after the Secretary's request, or no later than 90 days if the unit is a surface impoundment or waste pile not previously required to prepare a contingent post-closure plan. Any modifications requested by the Secretary will be approved, disapproved, or modified in accordance with the procedures in parts 124 and 270.	The Secretary will always have the authority to change the approved CMI plan and post-CMI requirements by modification of the enforceable document at any time, and will perform formal program-wide performance review every ten years at permit renewal.	Future request for mod. of enforceable document
§264.119(a)	No later than 60 days after certification of closure of each hazardous waste disposal unit, the owner/operator must submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the Secretary a record of the type, location, and quantity of hazardous wastes disposed of within each cell or other disposal unit of the facility. For hazardous wastes disposed of before January 12, 1981, the owner/operator must identify the type, location, and quantity of the hazardous wastes to the best of his knowledge and in accordance with any records it has kept	Upon completion of the CMI for MDA H, this information will be provided to the land use authority, either DOE/LANL or a subsequent owner (if applicable).	NA
§264.119(b)	Within 60 days of certification of closure of the first hazardous waste disposal unit and within 60 days of certification of closure of the last hazardous waste disposal unit, the owner/operator must:	Upon completion of the CMI for MDA H, this information will be provided to the land use authority, either DOE/LANL or a subsequent owner (if applicable).	NA

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.119(b)(1)	Record, in accordance with State law, a notation on the deed to the facility property -- or on some other instrument which is normally examined during title search -- that will in perpetuity notify any potential purchaser of the property that:	Upon completion of the CMI for MDA H, this information will be provided to the land use authority, either DOE/LANL or a subsequent owner (if applicable).	NA
§264.119(b)(1)(i)	The land has been used to manage hazardous wastes; and	Upon completion of the CMI for MDA H, this information will be provided to the land use authority, either DOE/LANL or a subsequent owner (if applicable).	NA
§264.119(b)(1)(ii)	Its use is restricted under 40 CFR subpart G regulations; and	Upon completion of the CMI for MDA H, this information will be provided to the land use authority, either DOE/LANL or a subsequent owner (if applicable).	NA
§264.119(b)(1)(iii)	The survey plat and record of the type, location, and quantity of hazardous wastes disposed of within each cell or other hazardous waste disposal unit of the facility required by §264.116 and §264.119(a) have been filed with the local zoning authority or the authority with jurisdiction over local land use and with the Secretary; and	Upon completion of the CMI for MDA H, this information will be provided to the land use authority, either DOE/LANL or a subsequent owner (if applicable).	NA
§264.119(b)(2)	Submit a certification, signed by the owner/operator, that he has recorded the notation specified in paragraph (b)(1) of this section, including a copy of the document in which the notation has been placed, to the Secretary.	Upon completion of the CMI for MDA H, this information will be provided to the land use authority, either DOE/LANL or a subsequent owner (if applicable).	NA
§264.119(c)	If the owner/operator or any subsequent owner/operator of the land upon which a hazardous waste disposal unit is located wishes to remove hazardous wastes and hazardous waste residues, the liner, if any, or contaminated soils, it must request a modification to the post-closure permit in accordance with the applicable requirements in parts 124 and 270. The owner/operator must demonstrate that the removal of hazardous wastes will satisfy the criteria of §264.117(c). By removing hazardous waste, the owner/operator may become a generator of hazardous waste and must manage it in accordance with all applicable requirements of this chapter. If it is granted a permit modification or otherwise granted approval to conduct such removal activities, the owner/operator may request that the Secretary approve either:	This is a facility-wide permit requirement not specifically addressed in a CMS report or CMI plan for a specific site at the facility.	NA
§264.119(c)(1)	The removal of the notation on the deed to the facility property or other instrument normally examined during title search; or	This is a facility-wide permit requirement not specifically addressed in a CMS report or CMI plan for a specific site at the facility.	NA
§264.119(c)(2)	The addition of a notation to the deed or instrument indicating the removal of the hazardous waste	This is a facility-wide permit requirement not specifically addressed in a CMS report or CMI plan for a specific site at the facility.	NA

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.120	No later than 60 days after completion of the established post-closure care period for each hazardous waste disposal unit, the owner/operator must submit to the Secretary, by registered mail, a certification that the post-closure care period for the hazardous waste disposal unit was performed in accordance with the specifications in the approved post-closure plan. The certification must be signed by the owner/operator and an independent registered professional engineer. Documentation supporting the independent registered professional engineer's certification must be furnished to the Secretary upon request until he releases the owner or operator from the financial assurance requirements for post-closure care under §264.145(i).	This is a facility-wide permit requirement not specifically addressed in a CMS report or CMI plan for a specific site at the facility.	NA
§264.310	Closure and post-closure care for landfills/landfill cells	For the containment corrective measure alternatives evaluated for MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies post-closure care requirements (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). A detailed description of how the selected corrective meets the intent of post-closure requirements will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.310(a)	At final closure of the landfill or upon closure of any cell, the owner/operator must cover the landfill or cell with a final cover designed and constructed to:	For the containment corrective measure alternatives evaluated for MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies post-closure care requirements (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). A detailed description of how the selected corrective meets the intent of post-closure requirements will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.310(a)(1)	Provide long-term minimization of migration of liquids through the closed landfill;	For the containment corrective measure alternatives evaluated for MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies post-closure care requirements (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). A detailed description of how the selected corrective meets the intent of post-closure requirements will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.310(a)(2)	Function with minimum maintenance;	For the containment corrective measure alternatives evaluated for MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies post-closure care requirements (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). A detailed description of how the selected corrective meets the intent of post-closure requirements will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.310(a)(3)	Promote drainage and minimize erosion or abrasion of the cover;	For the containment corrective measure alternatives evaluated for MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies post-closure care requirements (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). A detailed description of how the selected corrective meets the intent of post-closure requirements will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.310(a)(4)	Accommodate settling and subsidence so that the cover's integrity is maintained; and	For the containment corrective measure alternatives evaluated for MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies post-closure care requirements (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). A detailed description of how the selected corrective meets the intent of post-closure requirements will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.310(a)(5)	Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.	For the containment corrective measure alternatives evaluated for MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies post-closure care requirements (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). A detailed description of how the selected corrective meets the intent of post-closure requirements will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.310(b)	After final closure, the owner/operator must comply with all post-closure requirements contained in §264.117 through §264.120, including maintenance and monitoring throughout the post-closure care period (specified in the permit under §264.117). The owner/operator must:	For the containment corrective measure alternatives evaluated for MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies post-closure care requirements (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). A detailed description of how the selected corrective meets the intent of post-closure requirements will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.310(b)(1)	Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;	For the containment corrective measure alternatives evaluated for MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies post-closure care requirements (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). A detailed description of how the selected corrective meets the intent of post-closure requirements will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.310(b)(2)	Continue to operate the leachate collection and removal system until leachate is no longer detected;	NA - construction of all shafts at MDA commenced well before July 29, 1992 per 264.301(a) and (c) and 265.301(a).	NA
§264.310(b)(3)	Maintain and monitor the leak detection system in accordance with § 264.301(c)(3)(iv) and (4) and §264.303(c), and comply with all other applicable leak detection system requirements of this part;	For the containment corrective measure alternatives evaluated for MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies post-closure care requirements (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). A detailed description of how the selected corrective meets the intent of post-closure requirements will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.310(b)(4)	Maintain and monitor the ground-water monitoring system and comply with all other applicable requirements of subpart F of this part;	For the containment corrective measure alternatives evaluated for MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies post-closure care requirements (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). A detailed description of how the selected corrective meets the intent of post-closure requirements will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan
§264.310(b)(5)	Prevent run-on and run-off from eroding or otherwise damaging the final cover; and	For the containment corrective measure alternatives evaluated for MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies post-closure care requirements (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). A detailed description of how the selected corrective meets the intent of post-closure requirements will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

Regulatory Citation(s)	Regulatory Requirements	Comments/Implementation of HSWA Activities	Location in Document
§264.310(b)(6)	Protect and maintain surveyed benchmarks used in complying with §264.309.	For the containment corrective measure alternatives evaluated for MDA H, see the CMS report for a general description of how the proposed corrective measure satisfies post-closure care requirements (in accordance with alternative requirements §264.90(f), 264.110(c) and 264.118(b)(4)). A detailed description of how the selected corrective meets the intent of post-closure requirements will be provided in the approved CMI Plan.	Section 5.0 of the MDA H CMS Report and future MDA H CMI Plan

CERTIFICATION

I certify under penalty of law that this document and attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

James L. Holt
Associate Director, Operations
Los Alamos National Laboratory
Operator

4/25/02
Date Signed

E. Dennis Martinez
Acting Director
U.S. Department of Energy
National Nuclear Security Administration
Office of Los Alamos Site Operations
Owner/Operator

4/25/02
Date Signed